PIONEER®
*The Art of Entertainment*

# Service Manual

ORDER NO.
**RRV1683**

## CD/VIDEO CD/LD PLAYER

# CLD-100KV

● **Refer to the service manual RRV1638 for CLD-100K/TD.**

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

| Type | Model | Power Requirement | Remarks |
|---|---|---|---|
| | CLD-100KV | | |
| TD | O | AC110 – 240V | |
| TDXQ/NC | O | AC110 – 240V | |

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# 1. CONTRAST OF MISCELLANEOUS PARTS

*NOTES:*

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

| | | | |
|---|---|---|---|
| *560Ω* | → | *56 × 10¹ → 561* | *RD1/4PU[5][6][1]J* |
| *47kΩ* | → | *47 × 10³ → 473* | *RD1/4PU[4][7][3]J* |
| *0.5Ω* | → | *0R5* | *RN2H[0][R][5]K* |
| *1Ω* | → | *1R0* | *RS1P[1][R][0]K* |

*Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).*

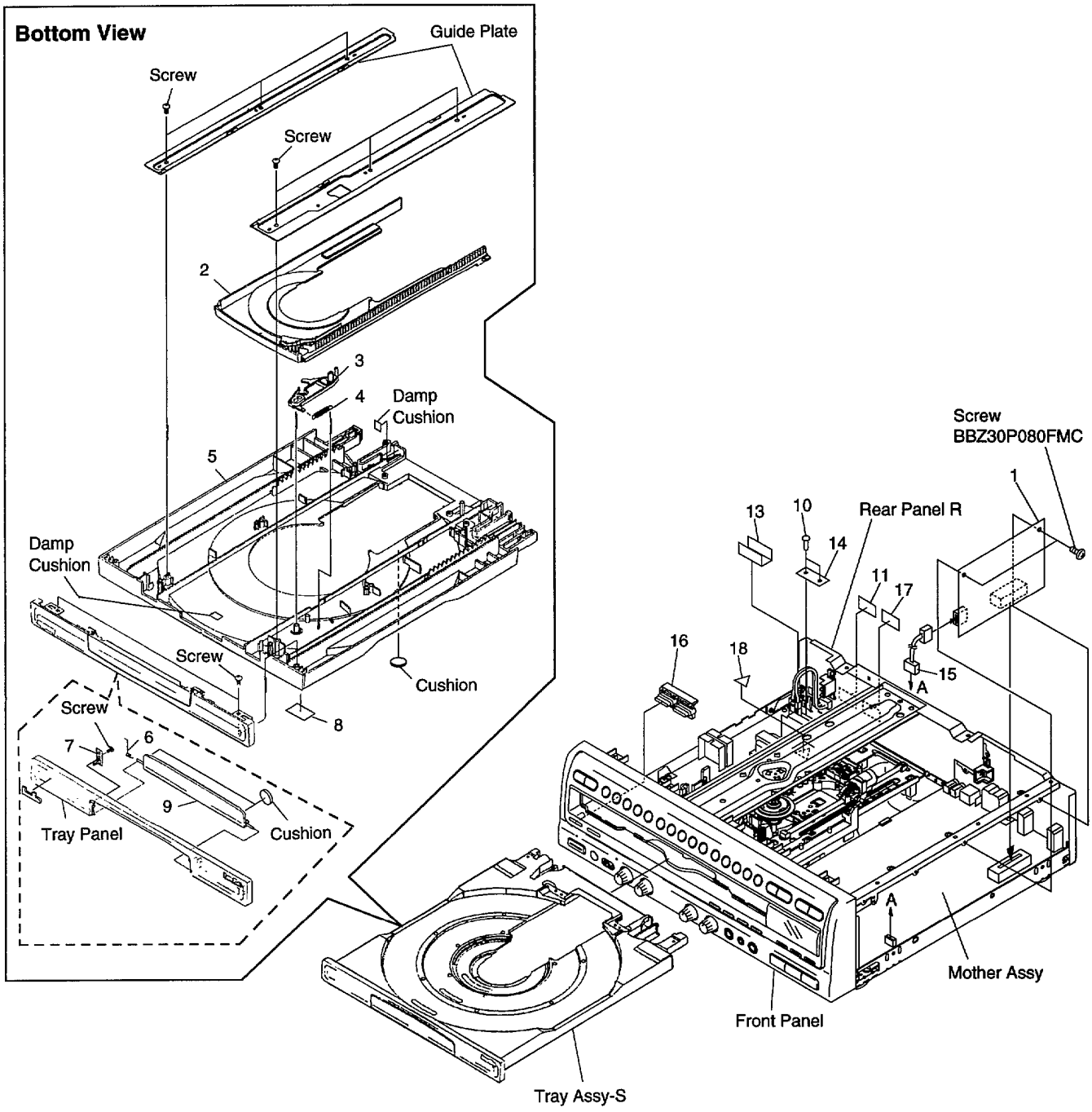
| | | | |
|---|---|---|---|
| *5.62kΩ* | → | *562 × 10¹ → 5621* | *RN1/4PC[5][6][2][1]F* |

## CLD-100KV/TD, CLD-100KV/TDXQ/NC and CLD-100K/TD have the same construction except for the following:

| Mark | Symbol & Description | Part No. | | | Remarks |
|---|---|---|---|---|---|
| | | CLD-100K/TD | CLD-100KV/TD | CLD-100KV/TDXQ/NC | |
| NSP | FRPB Assy | VWM1701 | VWM1702 | VWM1702 | |
| | MOCB Assy | VWG1773 | VWG1778 | VWG1778 | |
| NSP | LEDB Assy | VWG1774 | VWG1779 | VWG1779 | |
| NSP | KALB Assy | VWG1776 | VWG1787 | VWG1787 | |
| | MOTHER Assy | VWS1254 | VWS1253 | VWS1253 | |
| | VCDB Assy | Not used | VWV1508 | VWV1508 | ✻No.1 |
| | CD Tray | Not used | VNK3007 | VNK3007 | ✻No.2 |
| | Lock Plate | Not used | VNL1703 | VNL1703 | ✻No.3 |
| | Lock Plate Spring | Not used | VBH1188 | VBH1188 | ✻No.4 |
| NSP | LD Tray | Not used | VNK3188 | VNK3188 | ✻No.5 |
| | Door Spring | Not used | VBH1248 | VBH1248 | ✻No.6 |
| | Door Holder | Not used | VNL1704 | VNL1704 | ✻No.7 |
| | Tray Panel | VNK3726 | VNK3947 | VNK3947 | |
| NSP | Label | Not used | VRW1289 | VRW1289 | ✻No.8 |
| | CD Door Assy | Not used | VXA2286 | VXA2286 | ✻No.9 |
| | Display Sheet | VEC1872 | VEC1892 | VEC1892 | |
| | Rivet | Not used | DEC – 176 | DEC – 176 | ✻No.10 |
| | Caution Label | Not used | PRW1018 | PRW1018 | ✻No.11 |
| | FL Spacer | Not used | REB1171 | REB1171 | ✻No.12 |
| | Flexible Cable | VDA1554 | VDA1551 | VDA1551 | |
| | Barrier Sheet | Not used | VEC1877 | VEC1877 | ✻No.13 |
| | Barrier Sheet | Not used | VEC1878 | VEC1878 | ✻No.14 |
| | Housing Assy (3P) | Not used | VKP2133 | VKP2133 | ✻No.15 |
| NSP | PCB Holder | VNE1964 | VNE2087 | VNE2087 | |
| | Key A | Not used | VNK3177 | VNK3177 | ✻No.16 |
| NSP | Caution Label (F) | Not used | VRW – 328 | VRW – 328 | ✻No.17 |
| | Caution Label (G) | Not used | VRW – 329 | VRW – 329 | ✻No.18 |
| | Front Panel | VNK3725 | VNK3875 | VNK3875 | |
| | Play Button | VNK3728 | VNK3946 | VNK3946 | |
| | Rear Panel R | VNA1750 | VNA1792 | VNA1820 | |
| | Tray Assy – S | VXX2433 | VXX2309 | VXX2309 | |
| | Packing Case | VHG1584 | VHG1629 | VHG1654 | |
| | Remote Control Unit | VXX2452 | VXX2466 | VXX2466 | |
| | Audio Cord | VDE1047 | VDE1033 | VDE1033 | |
| | Operating Instructions (English/Spanish/Chinese) | VRE1049 | VRE1056 | VRE1056 | |
| | Bonnet Case – S | VXX2252 | VXX2252 | VXX2411 | |
| NSP | Panel Holder | VNA1507 | VNA1835 | VNA1714 | |

Note : The numbers in the remarks correspond to the numbers on the exploded diagram. Refer to "EXPLODED VIEWS".

## ■ EXPLODED VIEWS



## ■ CONTRAST OF PCB ASSEMBLIES

### MOCB ASSY

VWG1778 and VWG1773 have the same construction except for the following:

| Mark | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | VWG1773 | VWG1778 | |
| | CN102 | 52492 – 1420 | Not used | |
| | CN107 | Not used | 52492 – 2220 | * |
| | IC101 | PD3339A | PD3349A | |

Note * : Refer to "2. SCHEMATIC AND PCB CONNECTION DIAGRAMS".

### LEDB ASSY

VWG1779 and VWG1774 have the same construction except for the following:

| Mark | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | VWG1774 | VWG1779 | |
| | D705, D706 | Not used | SLR – 342DCT31 | * |
| | Q702 | Not used | DTC114ES | * |
| | R705, R706 | Not used | RD1/4PU181J | * |

Note * : Refer to "2. SCHEMATIC AND PCB CONNECTION DIAGRAMS".

### KALB ASSY

VWG1787 and VWG1776 have the same construction except for the following:

| Mark | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | VWG1776 | VWG1787 | |
| | D203, D204 | Not used | SLR – 342YCT31 | * |
| | R203, R204 | Not used | RD1/4PU181J | * |
| | R211 | RD1/4PU431J | RD1/4PU102J | |
| | R213 | Not used | RD1/4PU621J | * |
| | R214 | Not used | RD1/4PU431J | * |
| | S203, S204 | Not used | ASG1034 | * |

Note * : Refer to "2. SCHEMATIC AND PCB CONNECTION DIAGRAMS".

## MOTHER ASSY

VWS1253 and VWS1254 have the same construction except for the following:

| Mark | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | VWS1254 | VWS1253 | |
| | C110 | CKSQYF103Z50 | CKSQYF223Z50 | * |
| | C701, C703, C706 – C708 | Not used | CEAL470M6R3 | * |
| | C702, C704 | Not used | CKSQYF103Z50 | * |
| | C705, C709 | Not used | CKSQYF104Z25 | * |
| | CN105 | Not used | 52045 – 2245 | * |
| | CN121 | 52045 – 1445 | Not used | |
| | CN701 | Not used | BTFN20S-3SB7 | * |
| | CN703 | Not used | B3B – PH – K – S | * |
| | IC101 | PD0240B2 | PD0245A2 | |
| | IC701 | Not used | TC74HC4053AF | * |
| | IC702 | Not used | NJM2235M | * |
| | IC905,IC202,IC302,IC903 | BA4560F | XLA4560F | |
| | R12, R21, R28, R32, R40, R45, R720 | Not used | RS1/10S000J | * |
| | R13 – R15, R48, R52, R752 | RS1/10S000J | Not used | |
| | R110 | RS1/10S681J | RS1/10S561J | |
| | R335 | RS1/10S102J | RS1/10S751J | |
| | R625, R626 | RS1/10S750J | RN1/10SC750D | |
| | R702 | Not used | RN1/10SE152D | * |
| | R703, R705 | Not used | RS1/10S103J | * |
| | R704 | Not used | RS1/10S153J | * |
| | R706 | Not used | RS1/10S822J | * |
| | R750 | Not used | RN1/10SE271D | * |
| | R751 | RS1/10S000J | RN1/10SE271D | |
| | R753 | RS1/10S301J | RN1/10SE471D | |
| | R754 | RS1/10S102F | RN1/10SE911D | |
| | R755, R756 | Not used | RN1/10SE273D | * |
| | R764 | RS1/10S331F | RN1/10SE271D | |
| | R765 | RS1/10S822F | RN1/10SE473D | |
| | R766 | RS1/10S511F | RN1/10SE473D | |
| | R5013, R5016, R5019 | Not used | RS1/10S221J | * |
| | R5017 | Not used | RS1/10S122J | * |

Note * : Refer to "2. SCHEMATIC AND PCB CONNECTION DIAGRAMS".

## ■ PCB PARTS LIST

## VCDB ASSY

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC101 | | CXD1852Q |
| | IC301 | | CXD1913Q |
| | IC201 | | HM514260CLJ – 7 |
| | IC401 | | MC14577CF |
| | IC501 | | PD6193A |
| | IC801 | | PQ20VZ51 |
| | IC601 | | TC74HC125AF |
| | IC602 | | TC74HCT7007AF |
| | IC402 | | TC7S08F |
| | IC701 | | TC7W74F |
| | IC102, IC603 | | TC7WU04F |
| | Q103 | | 2PB709A |
| **COILS AND FILTERS** | | | |
| | F101 | | VTH1037 |
| **CAPACITORS** | | | |
| | C105, C106 | | CCSQCH050C50 |
| | C103, C104 | | CCSQCH100D50 |
| | C604 | | CCSQCH101J50 |
| | C121, C122 | | CCSQCH150J50 |
| | C505, C506 | | CCSQCH200J50 |
| | C310, C311, C902 | | CCSQCH220J50 |
| | C101, C120, C204, C303, C313 | | CEAL470M6R3 |
| | C802 | | CEAL470M6R3 |
| | C102, C107 – C114, C130 | | CKSQYF104Z25 |
| | C201 – C203, C250, C301, C302 | | CKSQYF104Z25 |
| | C304, C305, C316 – C321 | | CKSQYF104Z25 |
| | C401, C402, C501 – C504, C507 | | CKSQYF104Z25 |
| | C530, C601 – C603, C701, C801 | | CKSQYF104Z25 |
| **RESISTORS** | | | |
| | R320 | | RN1/10SC750D |
| | R301 | | RN1/10SE103D |
| | R802 | | RN1/10SE122D |
| | R801 | | RN1/10SE202D |
| | R312 | | RN1/10SE221D |
| | R302, R303 | | RN1/10SE332D |
| | R318, R319 | | RN1/10SE471D |
| | R705 | | RS1/8S000J |
| | | Other Resistors | RS1/10S□□□J |
| **OTHERS** | | | |
| | CN201 | CONNECTOR POST | B3B – PH – K – S |
| | CN101 | CONNECTOR | BTFN20P – 3RD7 |
| | X501 | CERAMIC RESONATOR | CSAC4.00MGCM |
| | X103 | CRYSTAL RESONATOR (27.000MHz) | VSS1095 |
| | X101 | CRYSTAL RESONATOR (28.63636MHz) | VSS1096 |
| | X102 | CRYSTAL RESONATOR (45.1584MHz) | VSS1097 |

# 3. SCHEMATIC AND PCB CONNECTION DIAGRAMS

## NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

**1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**

**2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**

**3. RESISTORS:**
Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.

**4. CAPACITORS:**
Unit: p:pF or µF unless otherwise noted.
Ratings: capacitor (µF)/voltage(V) unless othrewise noted.
Rated voltage: 50V except for electrolytic capacitors.

**5. COILS:**
Unit: m:mH or µH unless otherwise noted.

**6. VOLTAGE AND CURRENT:**
▭ or ← V:
DC voltage (V) in PLAY mode unless otherwise noted.
⇦ mA or ← mA:
DC current in PLAY mode unless otherwise noted.
Value in ( ) is DC current in STOP mode.

**7. OTHERS:**
- ⊘ or ◐ : Adjusting point.
- ⋘ : Measurement point.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

**8. SCH-□ ON THE SCHEMATIC DIAGRAM:**
- SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

**9. SWITCHES** (Underline indicates switch position):

LMSB ASSY
S101 : SW1
S102 : SW2
S103 : SW3

PKSB ASSY
S104 : OUTER
S105 : INNER

MOCB ASSY
S101 : STOP
S102 : PLAY/PAUSE
S103 : CD OPEN
S104 : LD OPEN
S105 : FLAT
S106 : NATURAL
S107 : SHARP

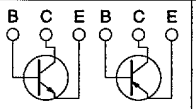
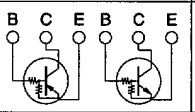
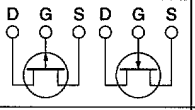
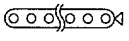
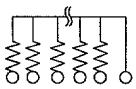
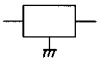
KALB ASSY
S201 : POWER ON
S203 : V-CD
S204 : PBC
S206 : SINGLE PLAY
S207 : VOCAL PARTNER
S208 : ONE TOUCH KARAOKE
S209 : GUIDE VOCAL

VRSB ASSY
S601 : MODE SELECTION

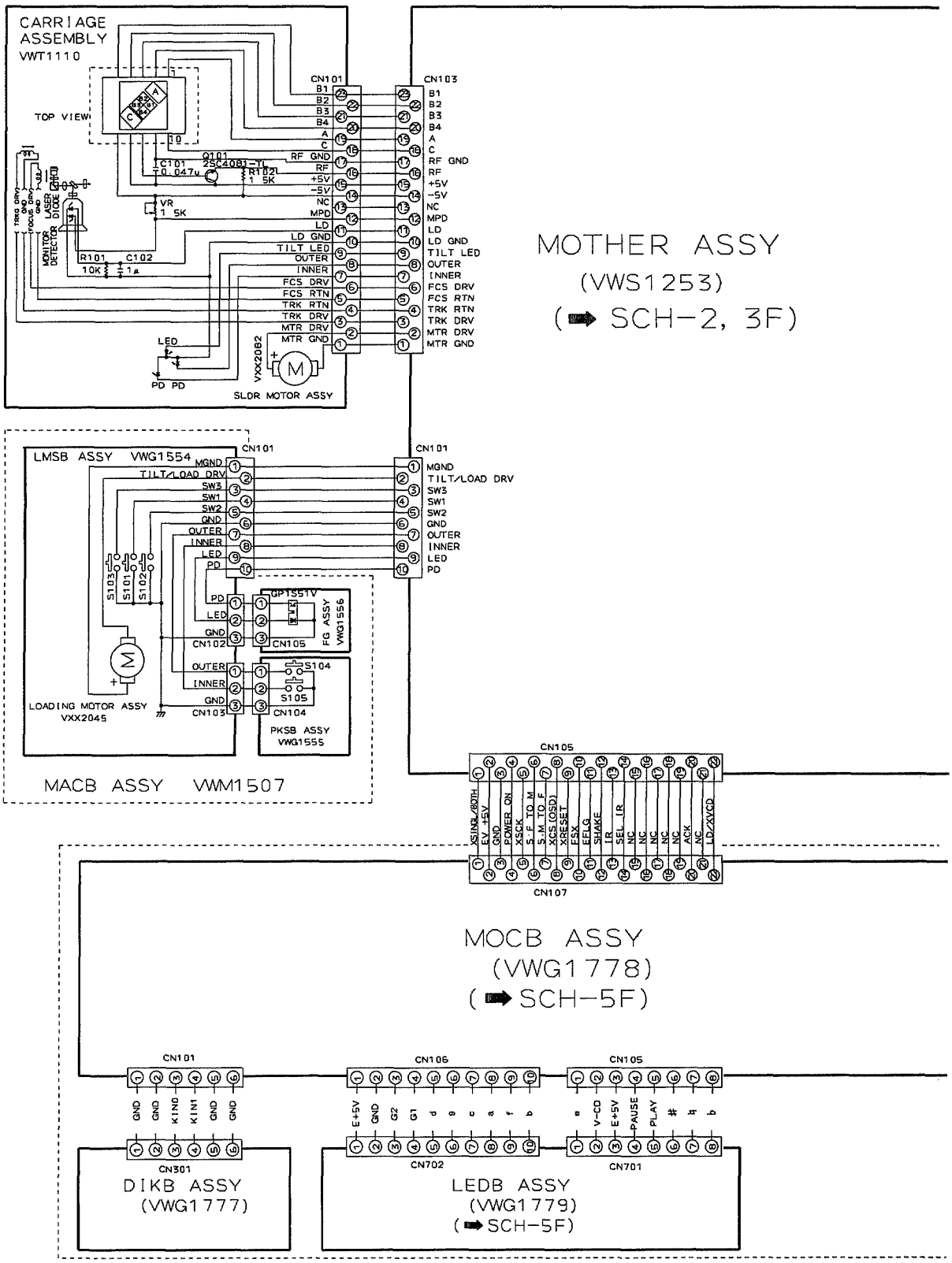
DIKB ASSY
S301 : ⏮
S302 : ⏭
S303 : 1
S304 : 2
S305 : 3
S306 : 4
S307 : 5
S308 : 6
S309 : 7
S310 : 8
S311 : 9
S312 : 10
S313 : 11
S314 : 12
S315 : 13
S316 : 14
S317 : 15

## NOTE FOR PCB DIAGRAMS

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

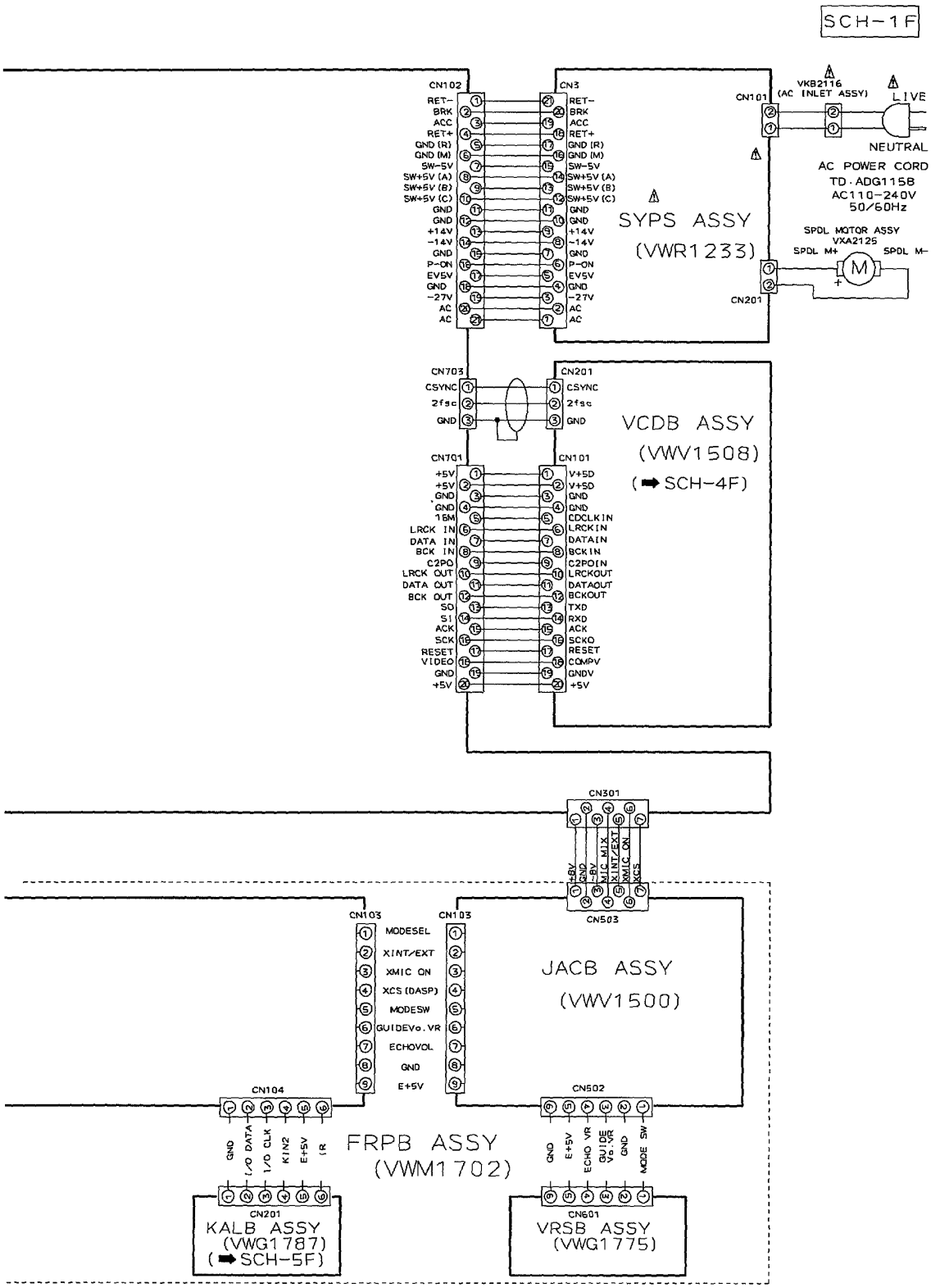
| Symbol in PCB Diagrams | Symbol in Schematic Diagrams | Part Name |
|---|---|---|
| |   | Transistor |
| |   | Transistor with resistor |
| |   | Field effect transistor |
|  |  | Resistor array |
| |  | 3-terminal regulator |

## 2.1 OVERALL CONNECTIONS




OVERALL CONNECTIONS

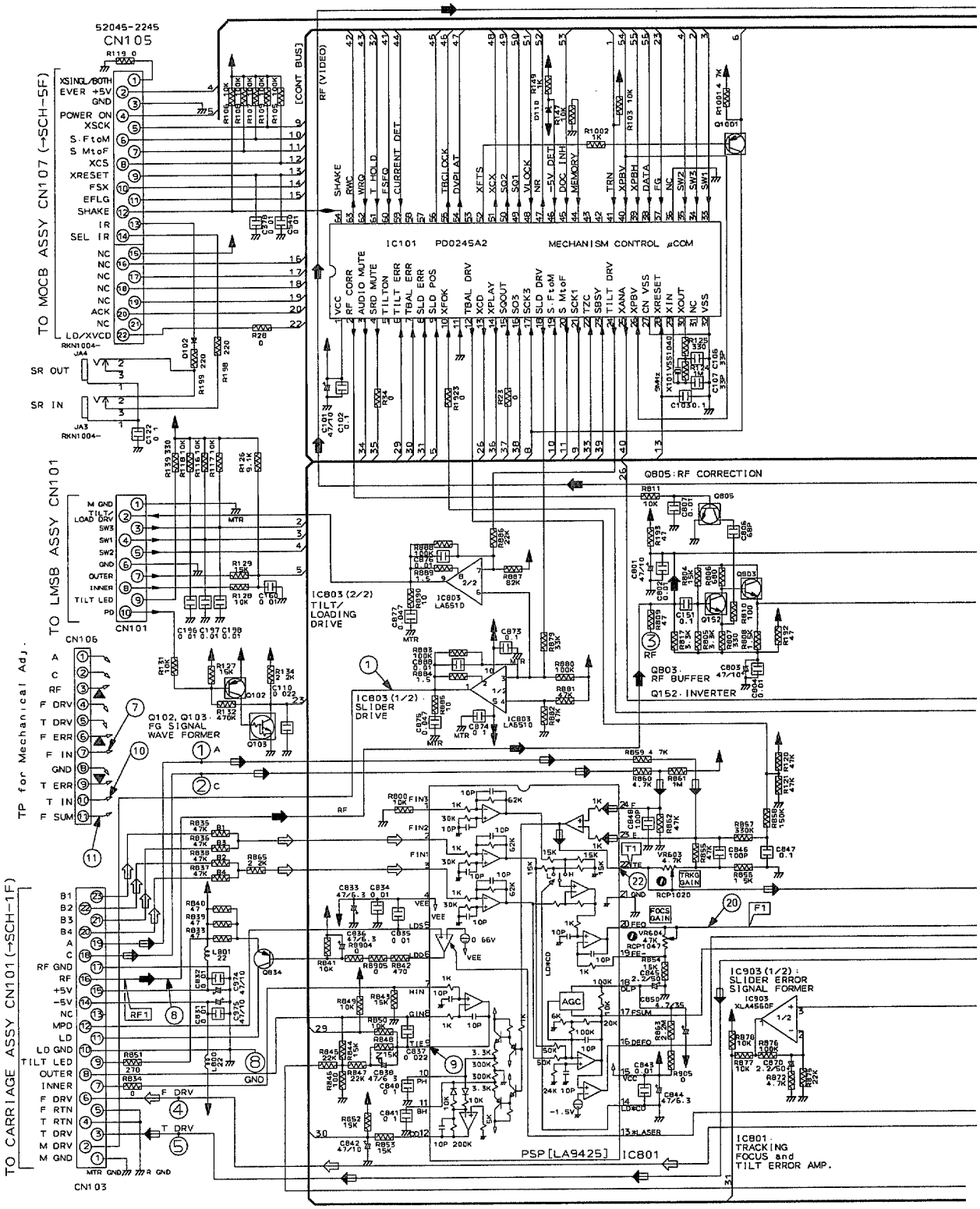
**SCH-1F**




OVERALL CONNECTIONS

**SCH-1F**

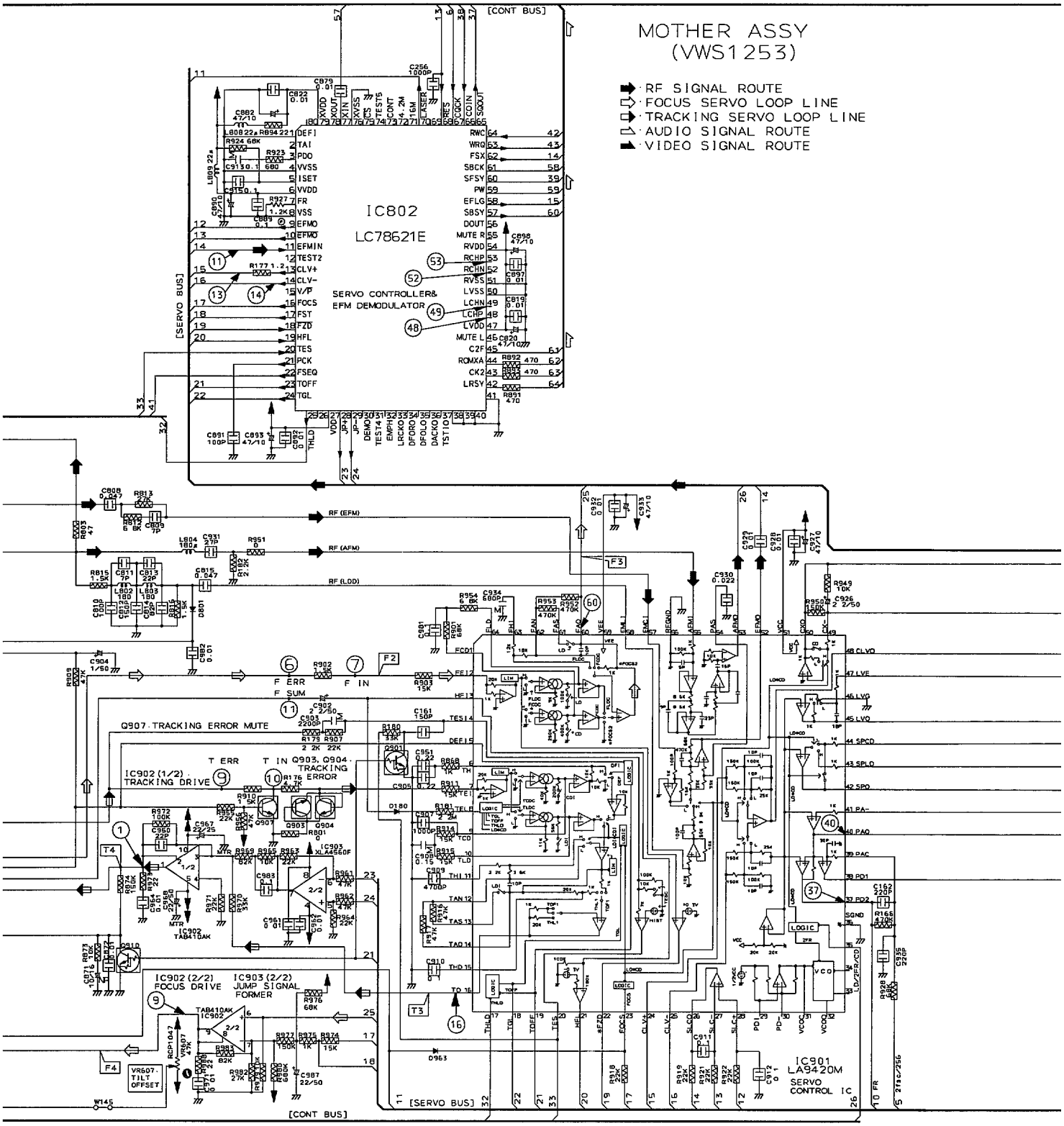
## 2.2 MOTHER ASSEMBLY




MOTHER ASSY (1/2)

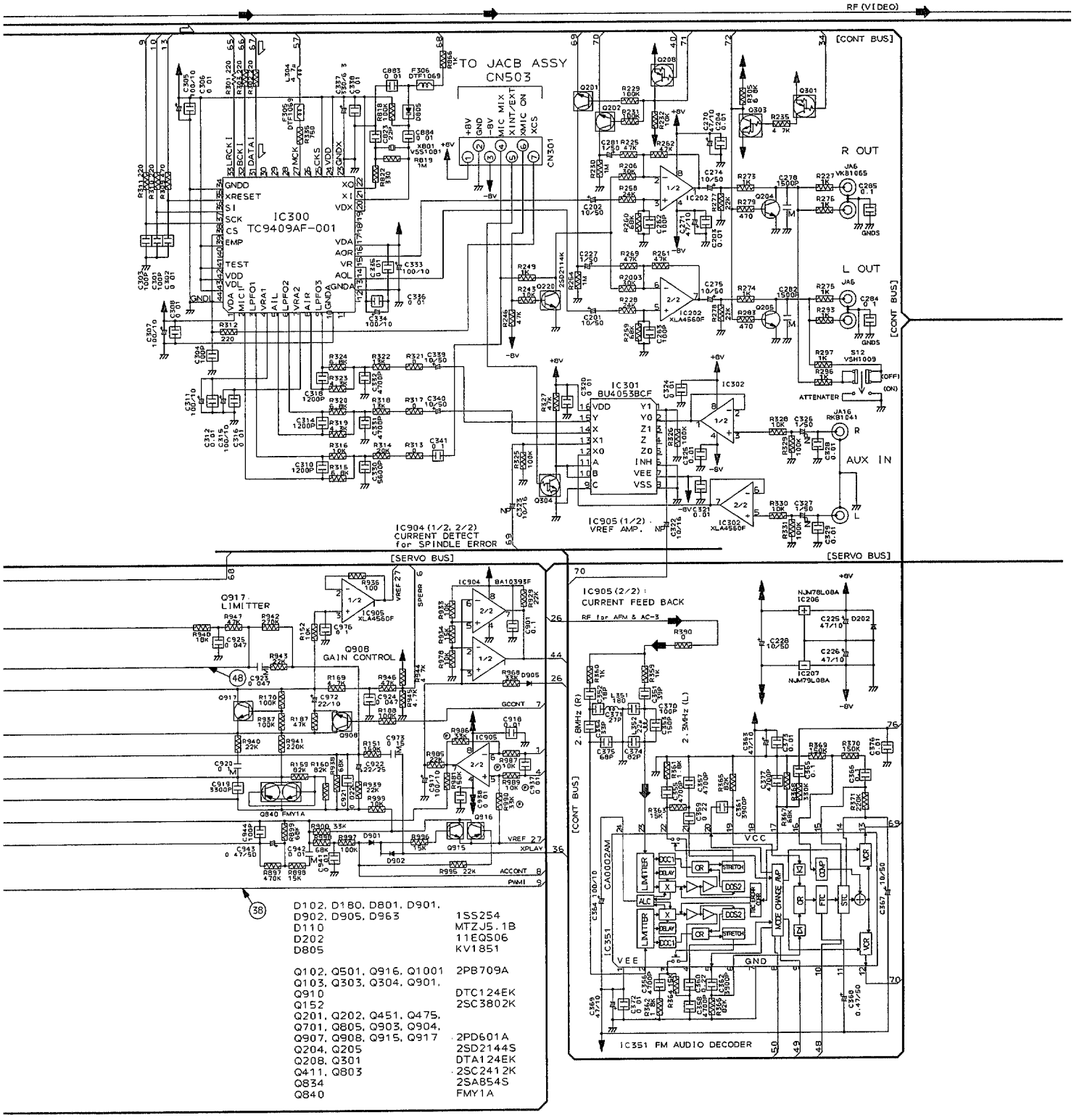
**SCH-2F**

SCH-2F




MOTHER ASSY (1/2)

**SCH-2F**

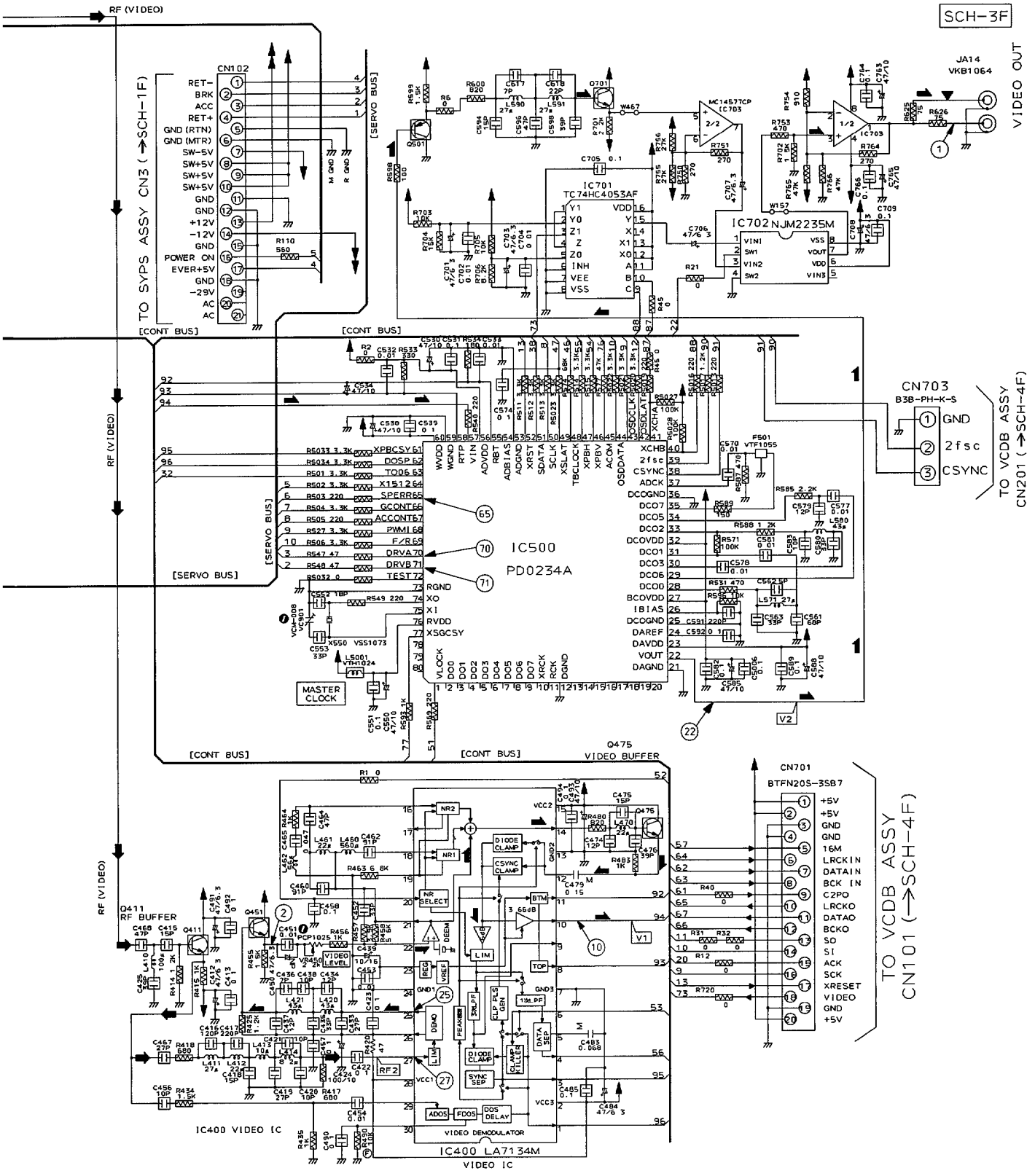


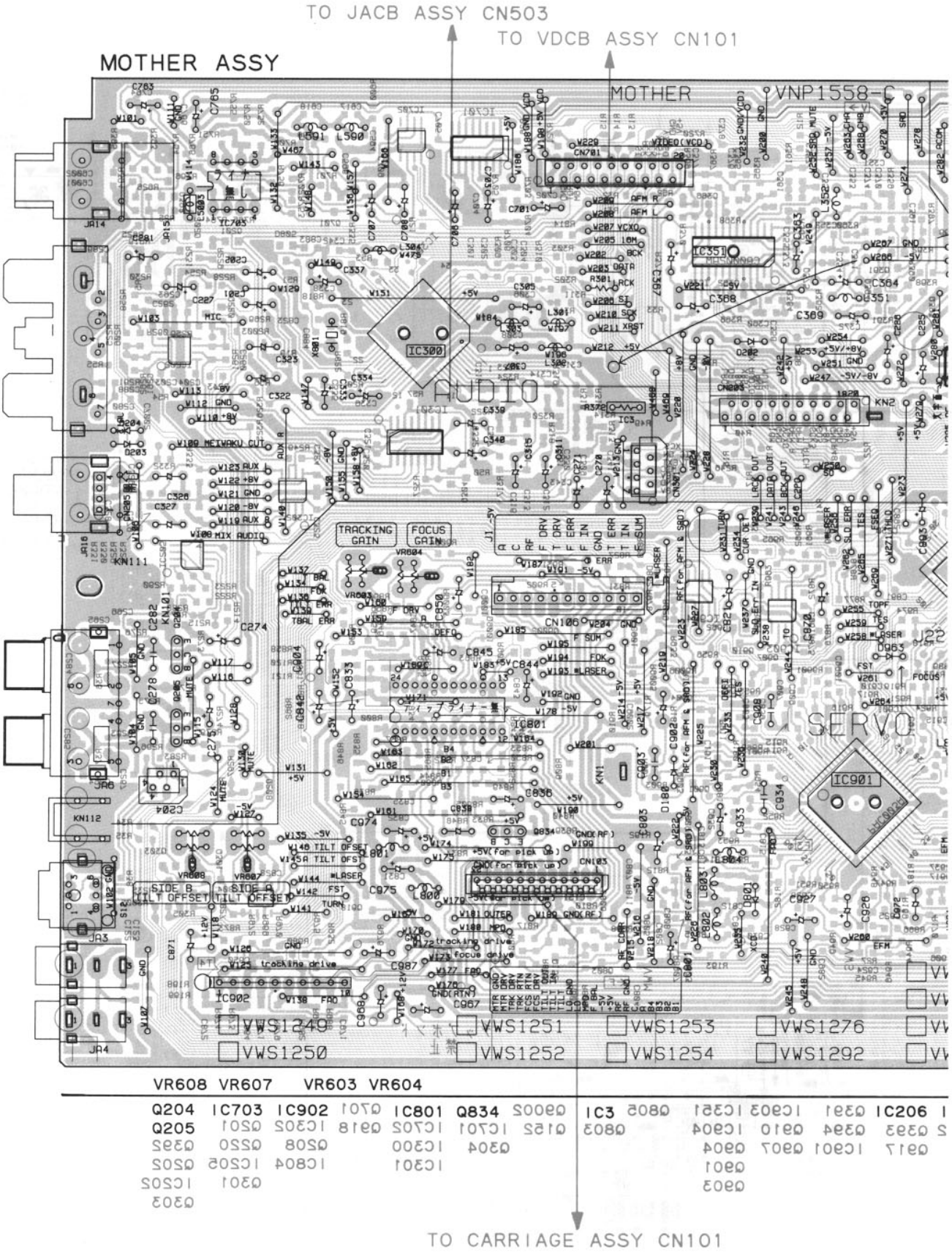

| | |
|---|---|
| D102, D180, D801, D901, D902, D905, D963 | 1SS254 |
| D110 | MTZJ5.1B |
| D202 | 11EQS06 |
| D805 | KV1851 |
| Q102, Q501, Q916, Q1001 | 2PB709A |
| Q103, Q303, Q304, Q901, Q910 | DTC124EK |
| Q152 | 2SC3802K |
| Q201, Q202, Q451, Q475, Q701, Q805, Q903, Q904, Q907, Q908, Q915, Q917 | 2PD601A |
| Q204, Q205 | 2SD2144S |
| Q208, Q301 | DTA124EK |
| Q411, Q803 | 2SC2412K |
| Q834 | 2SA854S |
| Q840 | FMY1A |

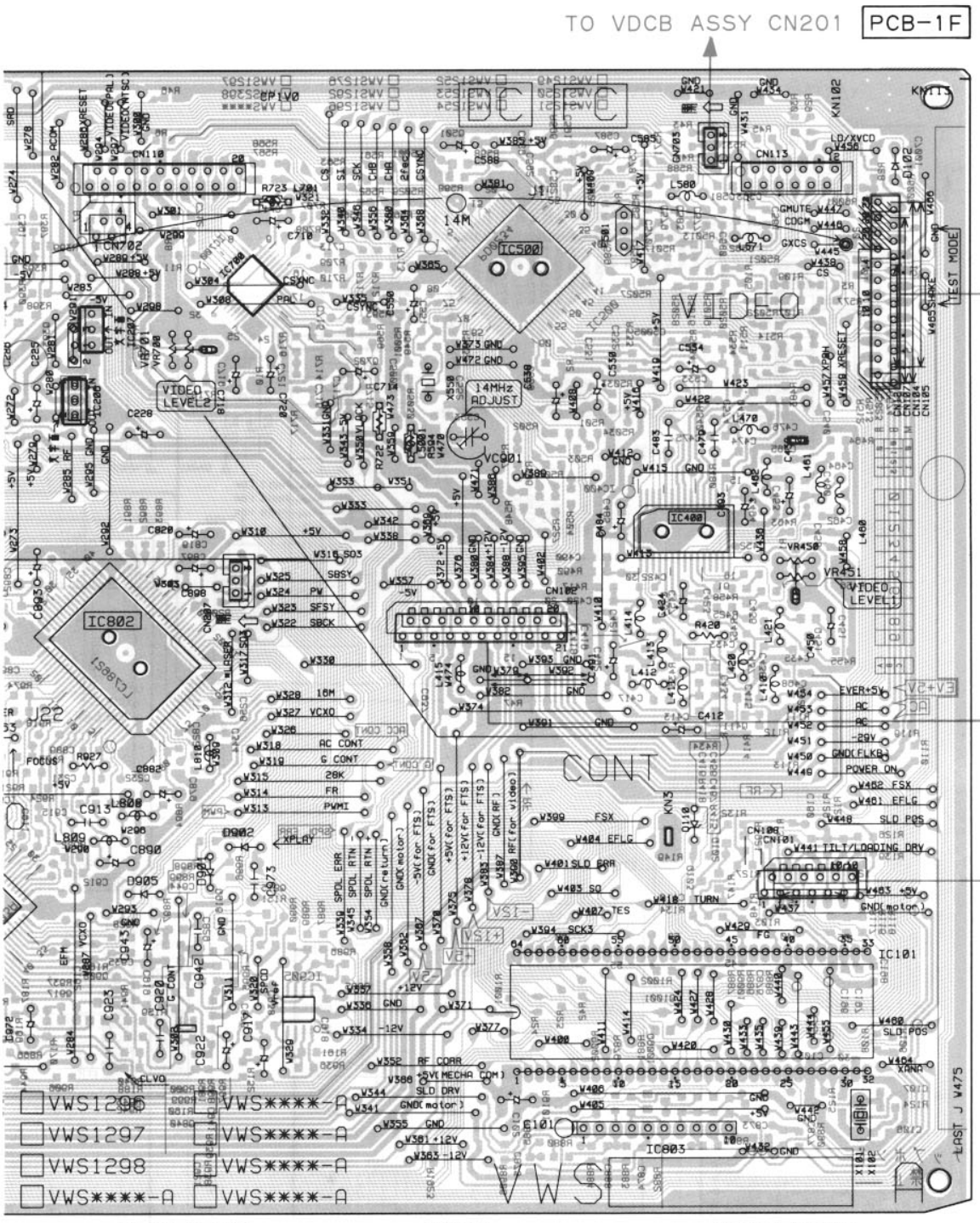
**SCH-3F**

MOTHER ASSY (2/2)

Note:
The numbers marked with a circle show the number of each measuring point, which correspond to the number in the service manual CLD-100K (ORDER NO. RRV1638) on page28.


SCH-3F
RF (VIDEO)
TO SYPS ASSY CN3 (→SCH-1F)
CN102
[CONT BUS]
[SERVO BUS]
IC701
TC74HC4053AF
IC702 NJM2235M
JA14
VKB1064
VIDEO OUT
CN703
B3B-PH-K-S
GND
2fsc
CSYNC
TO VCDB ASSY
CN201 (→SCH-4F)
IC500
PD0234A
MASTER CLOCK
Q475
VIDEO BUFFER
Q411
RF BUFFER
CN701
BTFN20S-3SB7
+5V
+5V
GND
GND
16M
LRCKIN
DATAIN
BCK IN
C2PO
LRCKO
DATAO
BCKO
SO
SI
ACK
SCK
XRESET
VIDEO
GND
+5V
TO VCDB ASSY
CN101 (→SCH-4F)
IC400 VIDEO IC
IC400 LA7134M
VIDEO IC
MOTHER ASSY (2/2)
SCH-3F

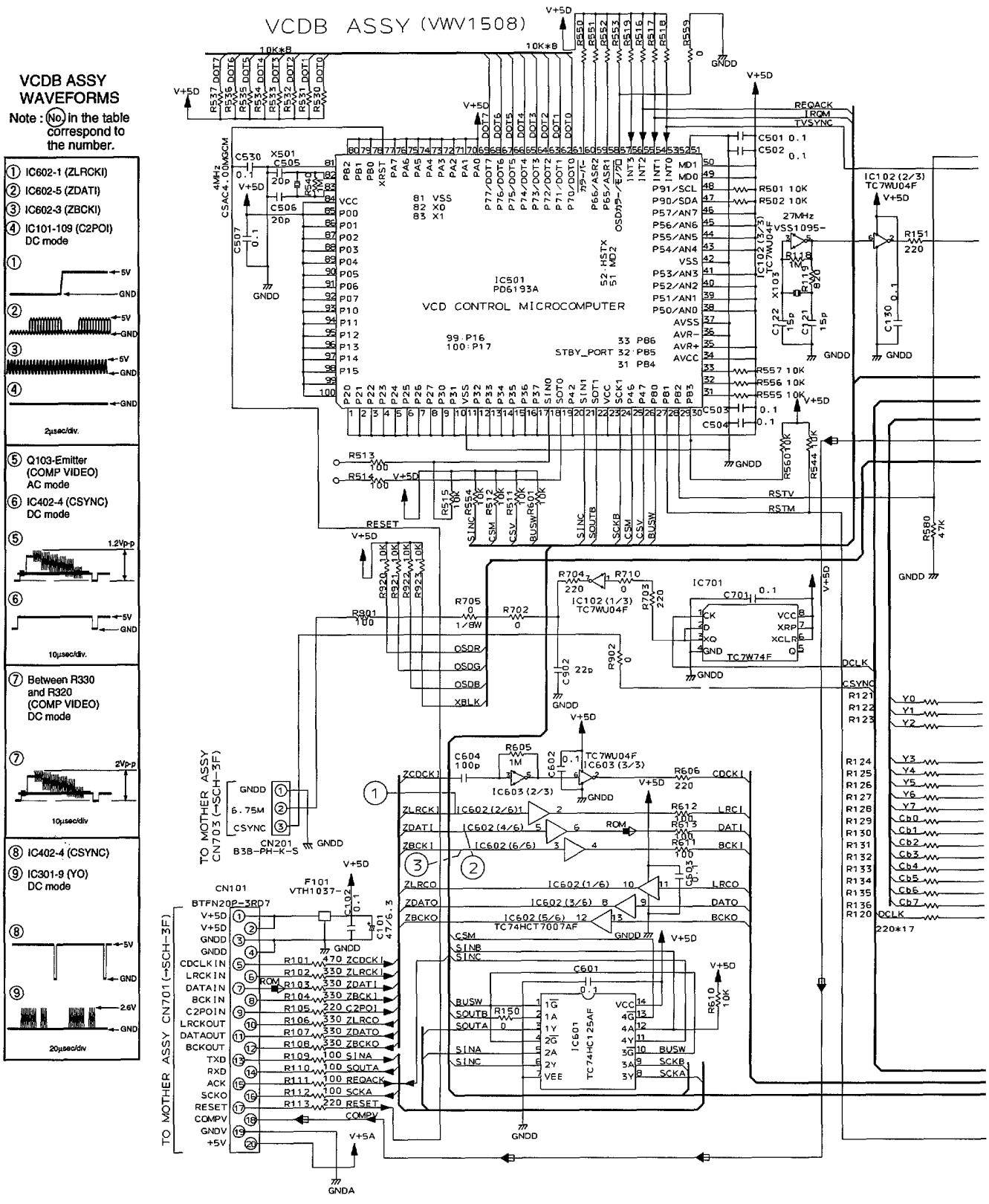

TO JACB ASSY CN503
TO VDCB ASSY CN101
MOTHER ASSY
MOTHER
VNP1558-C
AUDIO
SERVO
IC300
IC801
IC901
IC902
IC351
IC3
IC206
TRACKING GAIN
FOCUS GAIN
SIDE B TILT OFFSET
SIDE A TILT OFFSET
VWS1249
VWS1250
VWS1251
VWS1252
VWS1253
VWS1254
VWS1276
VWS1292
VR608 VR607 VR603 VR604
Q204 Q205 IC703 IC902 IC801 Q834
IC3
IC206
TO CARRIAGE ASSY CN101



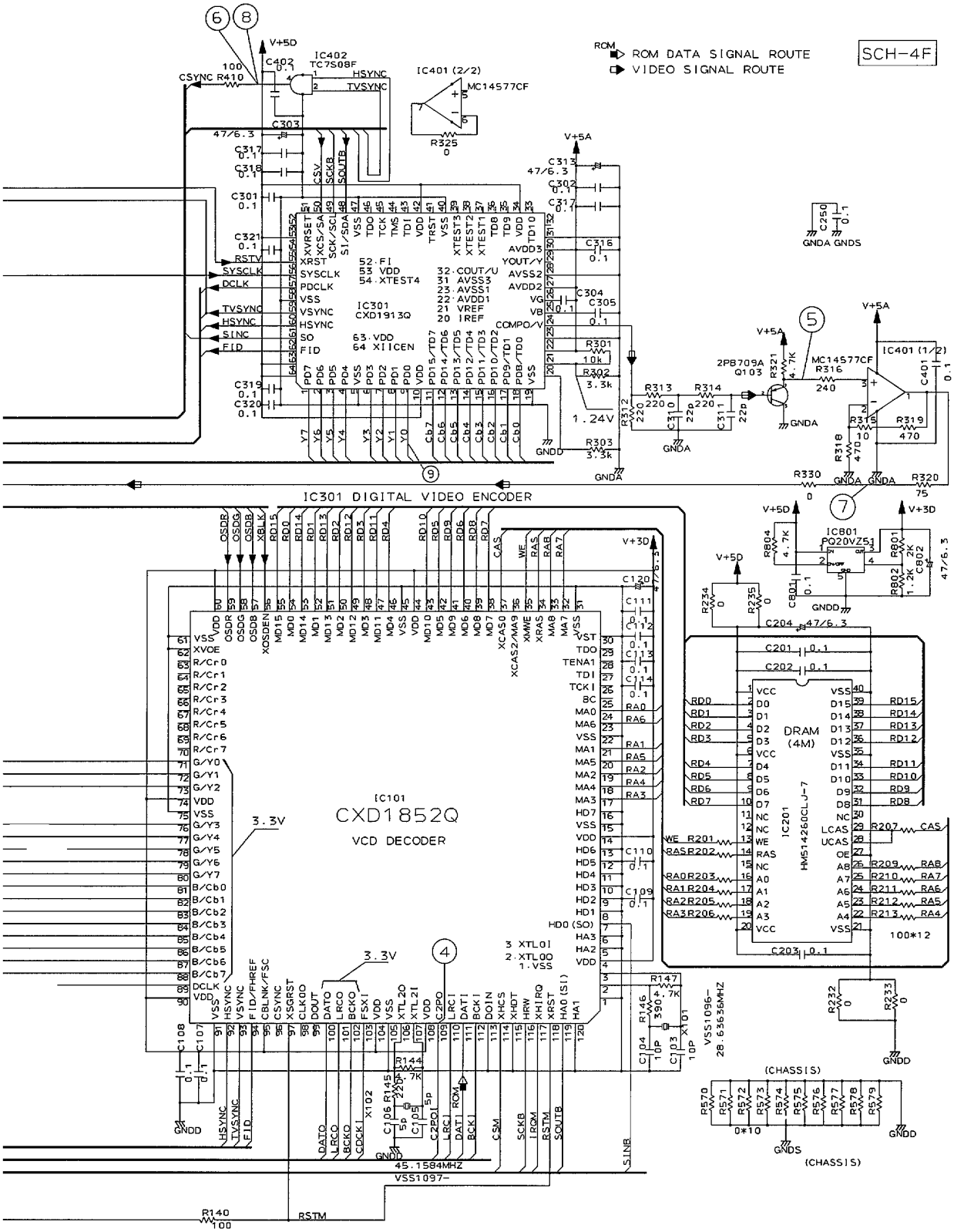

- This diagram is viewed from the mounted parts side.

- The parts mounted on this PCB include all necessary parts for several destinations.
  For further information for respective destinations, be sure to check with the schematic diagram.

## 2.3 VCDB ASSEMBLY




**SCH-4F** VCDB ASSY



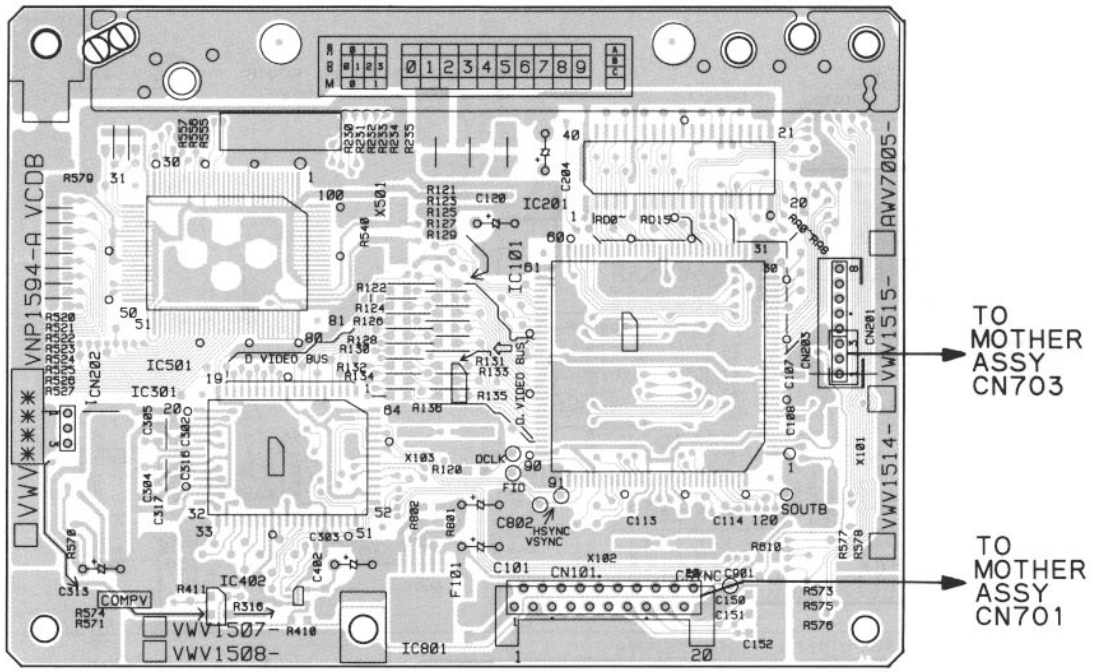

VCDB ASSY

**SCH-4F**

- This diagram is viewed from the mounted parts side.

PCB-2F

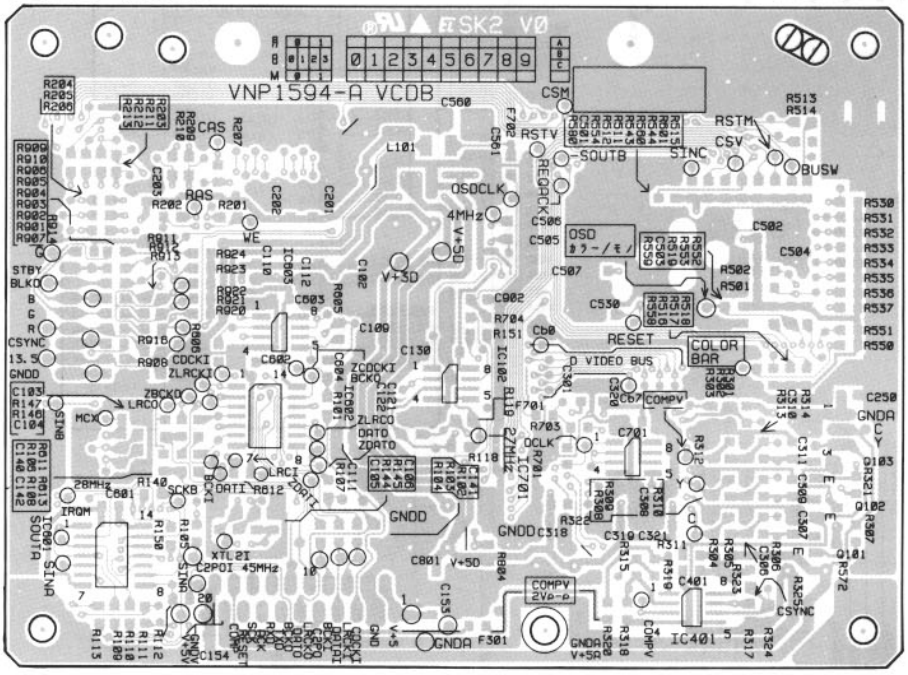
VCDB ASSY




IC501 IC301 IC402 IC201 IC101

VCDB ASSY

PCB-2F

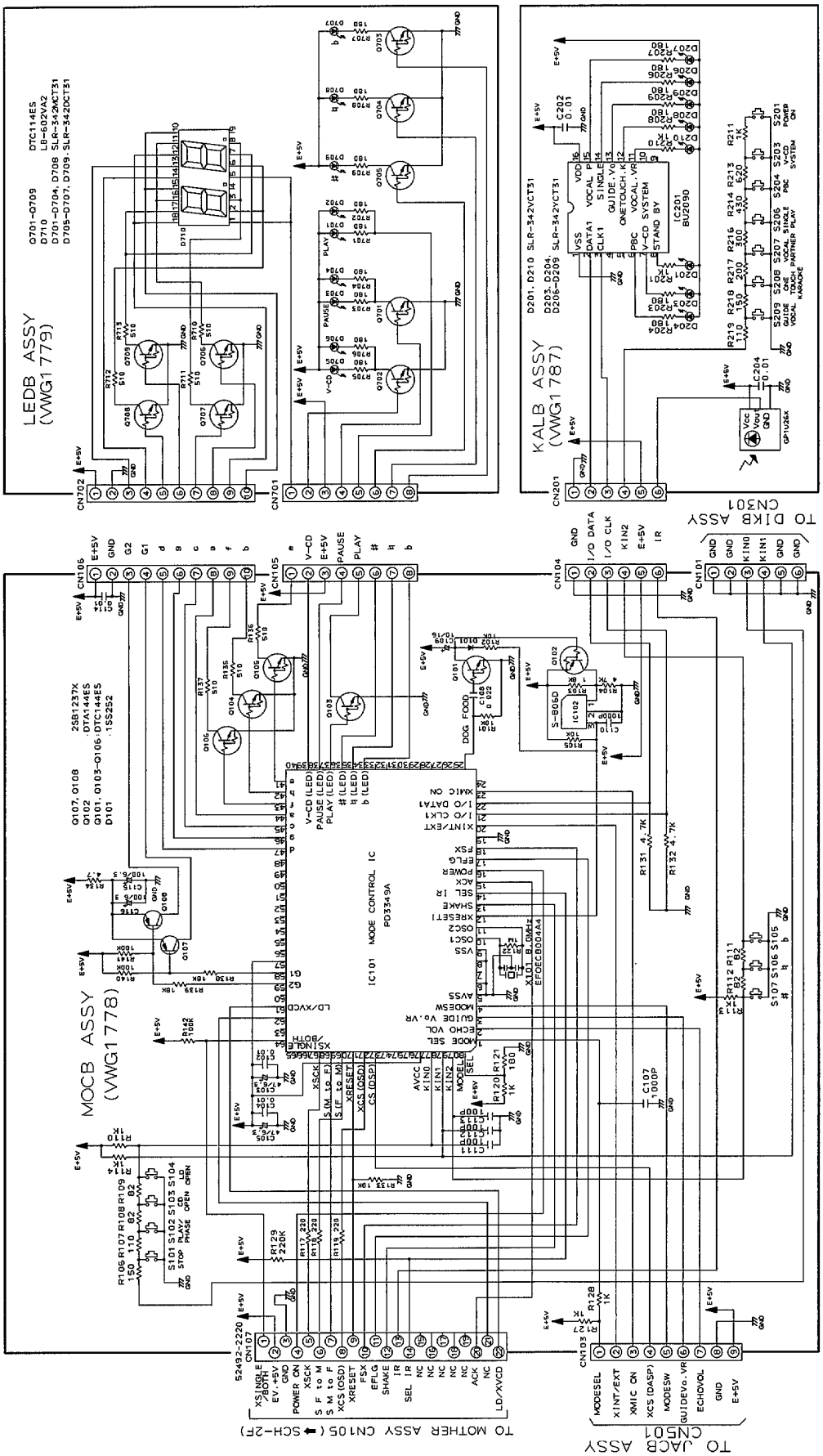



- This diagram is viewed from the foil side.

- The parts mounted on this PCB include all necessary parts for several destinations.
  For further information for respective destinations, be sure to check with the schematic diagram.

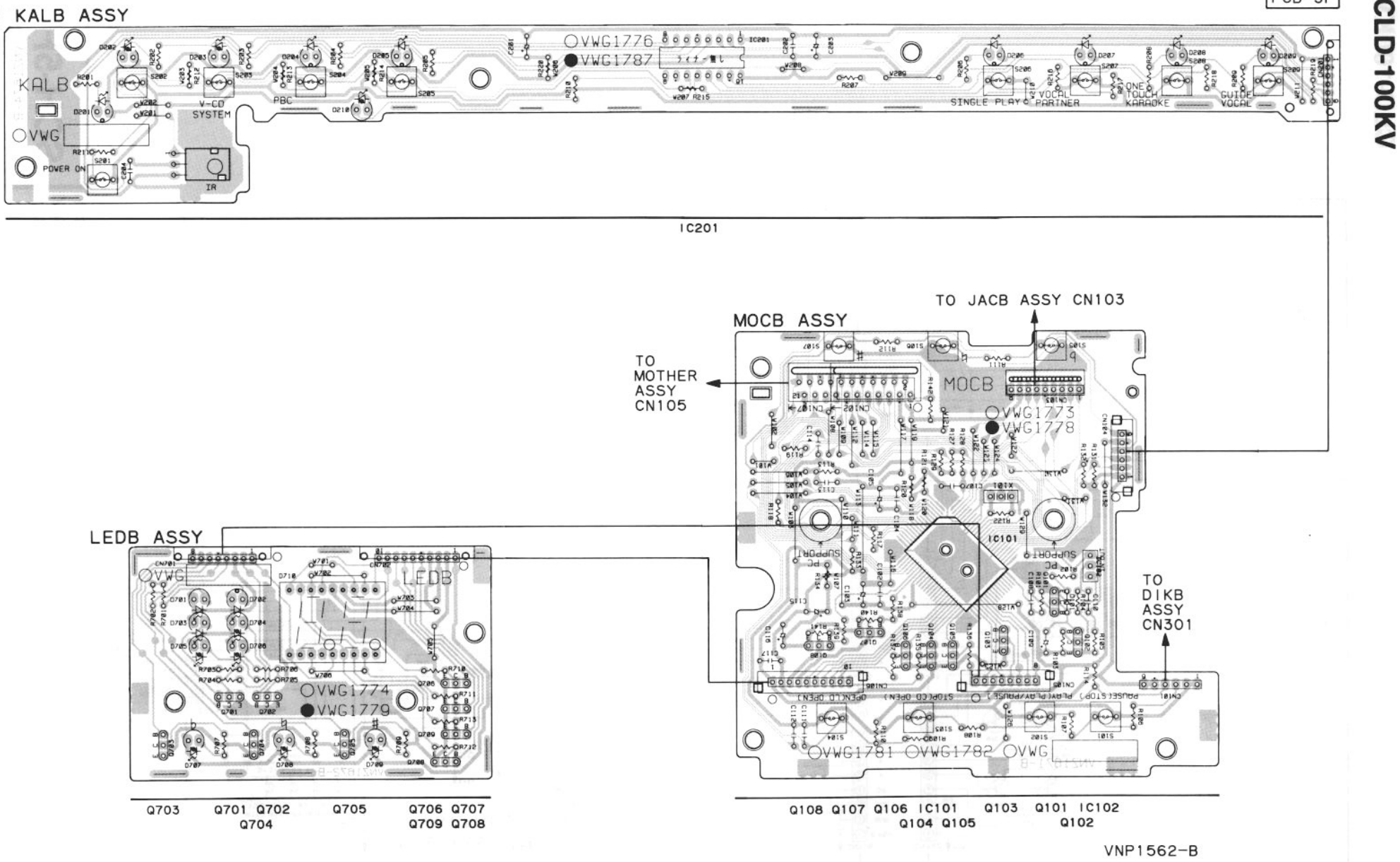
## 2.4 MOCB, LEDB AND KALB ASSEMBLIES

SCH-5F




MOCB ASSY
LEDB ASSY
KALB ASSY

**SCH-5F**




- This diagram is viewed from the mounted parts side.
- The parts mounted on this PCB include all necessary parts for several destinations.
  For further information for respective destinations, be sure to check with the schematic diagram.

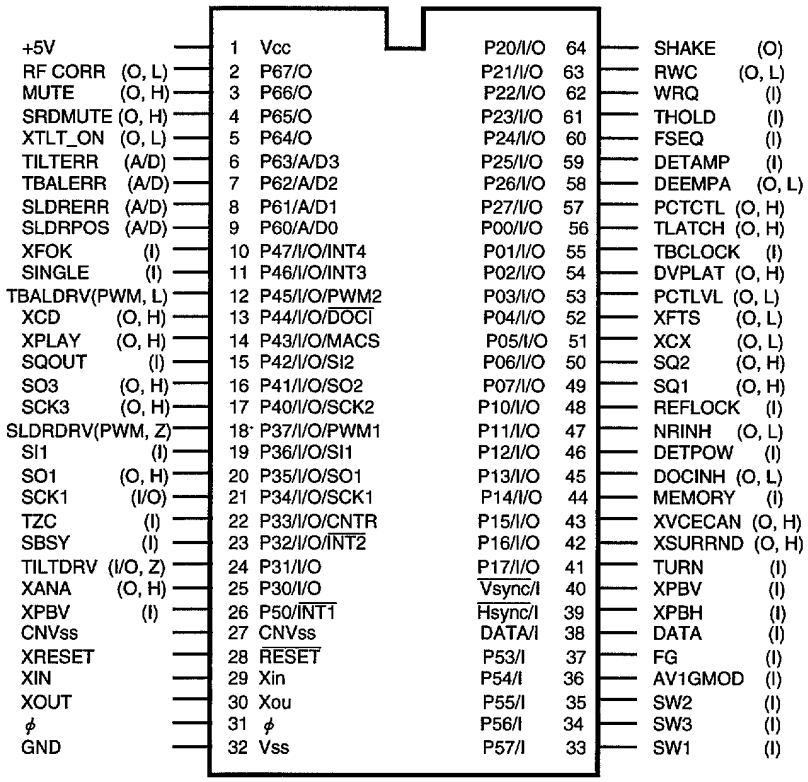
# 3. IC INFORMATION

## ■ PD0245A2 (MOTHER ASSY : IC101)

### • MECHANISM CONTROL IC

### • Pin Arrangement (Top View)

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.




### • Pin Function

| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | VCC | I | Power supply pin Apply 5V±10% |
| 2 | RFCORR | O | RF correction switch signal output H : Gain UP CD, CDV-A : Low, CAV inner circuit gain up, others are High |
| 3 | MUTE | O | Audio mute control signal output of audio system L : Release MUTE H : MUTE |
| 4 | SRDMUTE | O | Mute control signal output for AC3 Release MUTE during playback. L : Release MUTE H : MUTE |
| 5 | XTLT ON | O | Tilt operation information L : During operation In the OPEN/CLOSE, the voltage will up about 10% by using this port. |
| 6 | TILTERR | I A/D | This signal is A/D converted as the tilt servo control input. Control the tilt motor so that this signal becomes 2.5V. |
| 7 | TBALERR | I A/D | Tracking balance error signal input This signal is A/D converted as the tracking offset control input. |
| 8 | SLDERR | I A/D | This signal is A/D converted as the slider servo control input. Control the tilt motor so that this signal becomes 2.5V. |
| 9 | SLDPOS | I A/D | Pickup position detection switch input Detect the position by reading A/D input value which each switches are resistance divided. |
| 10 | XFOK | I | Focus servo lock signal input L : Lock H : Unlock Use for lock detection of focus servo. |
| 11 | SINGLE | I | This information transmit to mode control by communication. L : Port high H : Port low Use for the signal mode |
| 12 | TBALDRV | O PWM | Output the tracking offset signal to PWM output, then use for auto tracking offset. 910 μsec period, tri-state control H, L, Z |
| 13 | XCD | O | LD/CD switch signal output L : CD H : LD |
| 14 | XPLAY | O | Signal output during spindle servo L : During servo H : During acceleration, brake and stop |
| 15 | SQOUT | I | Command data input from DSP Read out SUBQ |
| 16 | SO3 | O | Serial 3 data signals output Serial signals are common used and signal distinguishes from the latch signals (DVPLAT and TLAT). |
| 17 | SCK3 | O | Serial 3 clock signals output |
| 18 | SLDDRV | O PWM | Slider control signal output 5V=FWD, 0V=REV, 2.5V=STOP 910 μsec period, tri-state control H, L, Z |

| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 19 | SI1 | I | Data input from the mode control IC |
| 20 | SO1 | O | Serial data output to the mode control IC |
| 21 | SCK1 | I/O | Clock for serial communication with the mode control IC<br>Becomes input mode without communicate with the mode control IC |
| 22 | TZC | I INT | Tracking error zero cross signal input Monitor this signal when searching track count in the miss clamp detection. |
| 23 | SBSY | I | Interrupt input for reading sub-code Q data from DSP |
| 24 | TILTDRV | I/O | LOAD/TILT control output<br>0.5V-Tray IN, OUT/Tilt DOWN, UP 2.5V-STOP Use for tilt servo that tilt drive is PWM output. |
| 25 | XANA | O | Digital/Analog audio switch signal output L : Analog H : Digital |
| 26 | XPBV | I | Playback vertical sync. signal input of LD/CDV L : During vertical sync. |
| 27 | CNVss | I | Ground for A/D conversion |
| 28 | XRESET | I | Reset signal input L : Reset H : Release reset Mode control is controlled. |
| 29 | XIN | I | 9MHz clock oscillation input |
| 30 | XOUT | O | 9MHz clock oscillation output |
| 31 | N.C. | O | Not used |
| 32 | GND | I | Ground |
| 33 | SW1 | I | Switch input for Loading/Tilt position detection |
| 34 | SW3 | | |
| 35 | SW2 | | |
| 36 | AV1GMOD | I | AV1 gijutu mode When this port set to H, unti-shock control will be effective by Address C-bit2 from the mode control. |
| 37 | FG | I | Spindle motor FG signal input 16 outputs per rotation Used after dividing by 2 in microprocessor |
| 38 | DATA | I | Input pin for Phillips code decoder with built in mechanism controller |
| 39 | XPBH | I | Playback H-SYNC input for Phillips code decoder |
| 40 | XPBV | I | Playback V-SYNC input for Phillips code decoder |
| 41 | TURNA | I | Turn switch input H : side A L : side B |
| 42 | XSURRND | O | Surround control H : OFF L : ON |
| 43 | XVCECAN | O | Voice cancel output H : OFF L : Cancel |
| 44 | MEMORY | I | Memory model discrimination H : Memory model L : Non-memory model |
| 45 | DOCINH | O | Control the clamp pulse and clamp killer by tri-state value |
| 46 | DETPOW | I | Use for power abnormal signal input port. L : Normal H : Abnormal |
| 47 | NRINH | O | Control output of the noise reduction switch signal output L : CX ON H : CX OFF |
| 48 | REFLOCK | I | Reference signal input from DVP L : Phase not aligned H : Phase aligned (Non-memory) |
| 49 | SQ1 | O | Analog audio switch signal output 1/L L : Squelch OFF H : Squelch ON |
| 50 | SQ2 | O | Analog audio switch signal output 2/R L : Squelch OFF H : Squelch ON |
| 51 | XCX | O | Analog audio CX noise reduction switch switch signal output L : CX ON H : CX OFF |
| 52 | XFTS | O | Serial command output switch signal output of DSP/others L : DSP H : others |
| 53 | PCTLVL | O | Signal output for the picture quality adjustment L : SHARP2 (strong) H : SHARP1 (weak) |
| 54 | DVPLAT | O | PD0234 serial latch signal output Latches at falling edge. |
| 55 | TBCLOCK | I | Spindle lock signal input L : Unlock H : Lock |
| 56 | TLATCH | O | DAC & digital filter PD2026B serial control latch signal output Latches at falling edge. |
| 57 | PCTCTL | O | Outline correction signal output L : Correction OFF H : Correction ON |
| 58 | DEEMPA | O | DSP deemphasis control L : OFF H : ON |
| 59 | DETAMP | I | Spindle over-current detection signal input L : Over current H : Normal |
| 60 | FSEQ | I | Subcode sync. conformity detection signal input L : Not conformity H : Conformity |
| 61 | THOLD | I | Track jump accelerating / decelerating signal input L : other H : accelerating / decelerating |
| 62 | WRQ | I | Subcode Q reading OK signal input L : NG H : OK This pin will be H when Subcode Q data passed by CRC check. |
| 63 | RWC | O | DSP read / write command signal output L : Read H : Write |
| 64 | SHAKE | I/O | Handshake signal for data communication with the mode control IC<br>This pin is the bilateral data line and each microprocessor control the Input / Output. |

## ■ PD3349A (MOCB ASSY : IC101)
## ■ MODE CONTROL IC

### ● Pin Function

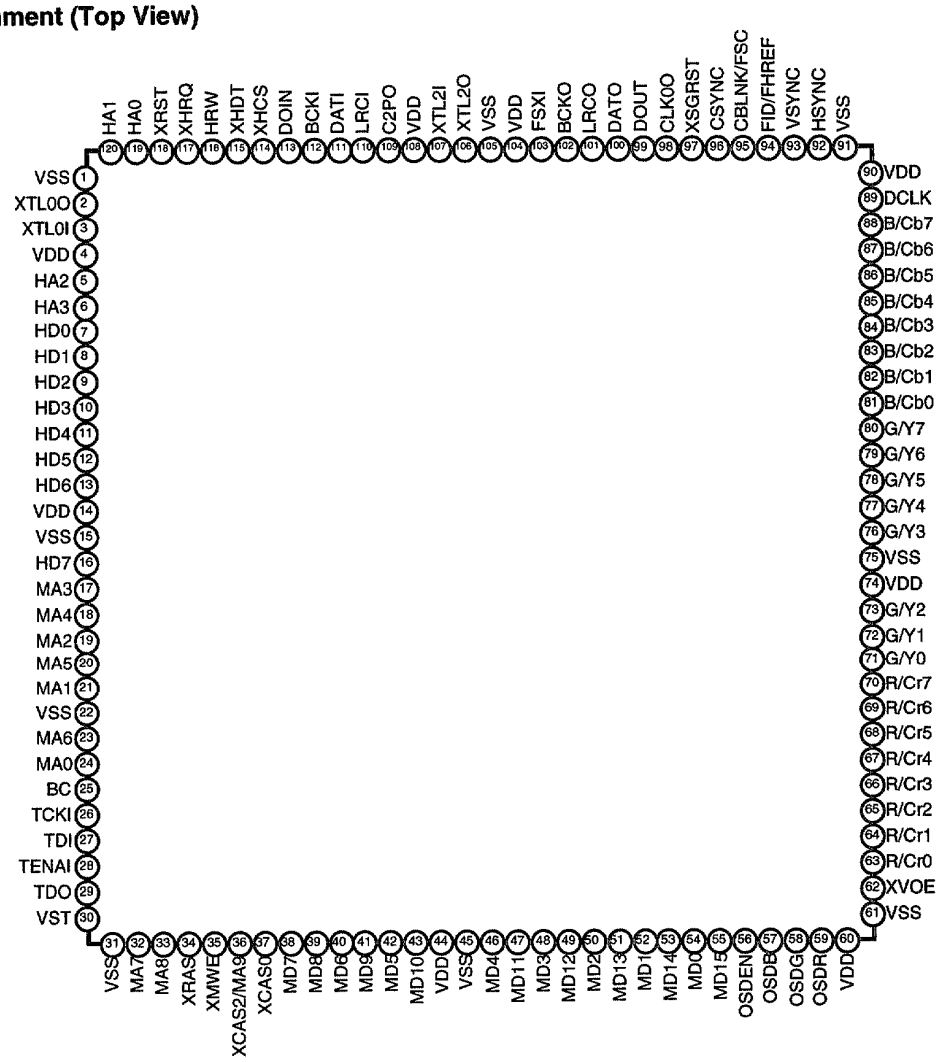
| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | MODESEL | I | MIC control input. (AD input) |
| 2 | ECHO VOL | I | Echo volume data value. (AD input) |
| 3 | ONTA BAL | I | Vocal volume data value. (AD input) |
| 4 | MODE SW | I | Model switching input. (Standard, Karaoke and AUX) (AD input) |
| 5 | AVss | I | GND |
| 6 | TEST | I | GND |
| 7 | X2 | O | Not used. (N.C) |
| 8 | X1 | I | GND |
| 9 | Vss | I | GND |
| 10 | OSC1 | I | Oscillator. (8MHz) |
| 11 | OSC2 | O | |
| 12 | XRESET (IN) | I | CPU reset input. (L : Reset) |
| 13 | SHAKE (ACK) | I/O | Mechanism control communications request input. (Mode control communications enabled output.) |
| 14 | SEL IR | I | Remote control input. |
| 15 | V-CD | I/O | VCD control communications request input. (Mode control communications enabled output.) |
| 16 | P.ON | O | Mother board power supply switching output. |
| 17 | EFLG | I | For error rate measurement. |
| 18 | FSX | I | For error rate measurement. |
| 19 | P1/6 | I | Not used. (N.C) |
| 20 | XINT/EXT | O | Analog audio switching output. (L : Player, H : External input) |
| 21 | I/O CLK1 | O | Clock output for I/O expander. |
| 22 | I/O DATA1 | O | Data output for I/O expander. |
| 23 | XMIC ON | O | Mic line switching output. (L : ON, H : OFF) |
| 24 | P4/7 | O | Not used. (N.C) |
| 25 | DOG FOOD | O | Pulse output for Watch dog. |
| 26 | P4/5 | O | Not used. (N.C) |
| 27 | P4/4 | | |
| 28 | P4/3 | | |
| 29 | P4/2 | | |
| 30 | P4/1 | | |
| 31 | P4/0 | | |
| 32 | P5/0 | | |
| 33 | P5/1 | | |
| 34 | b (LED) | O | Key control DOWN LED output. |
| 35 | NATURAL (LED) | O | Key control NATURAL LED output. |
| 36 | # (LED) | O | Key control UP LED output. |
| 37 | PAUSE (LED) | O | Pause LED output. |
| 38 | PLAY (LED) | O | Play LED output. |
| 39 | V-CD (LED) | O | Video CD LED output. |
| 40 | Vdisp | I | Not used. (N.C) |

| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 41 | E | O | 7 seg. display segment output. |
| 42 | B | | |
| 43 | F | | |
| 44 | A | | |
| 45 | C | | |
| 46 | G | | |
| 47 | D | | |
| 48 | P6/7 | O | Not used. (N.C) |
| 49 | P7/0 | | |
| 50 | P7/1 | | |
| 51 | P7/2 | | |
| 52 | P7/3 | | |
| 53 | P7/4 | | |
| 54 | P7/5 | | |
| 55 | P7/6 | | |
| 56 | P7/7 | | |
| 57 | VCC | I | Power supply. (+5V) |
| 58 | G1 | O | 7 seg. display grid output. |
| 59 | G2 | O | 7 seg. display grid output. |
| 60 | P8/2 | O | Not used. (N.C) |
| 61 | LD/VCD | O | LD/VCD screen switching output. (H : LD, L : VCD) |
| 62 | P8/4 | O | Not used. (N.C) |
| 63 | P8/5 | O | Not used. (N.C) |
| 64 | XSINGLE/BOTH | O | Switching between single side and double sides. (H : Double sides, L : Single side) |
| 65 | P8/7 | O | Not used. (N.C) |
| 66 | P9/0 | O | Not used. (N.C) |
| 67 | XSCK | I/O | Serial communications clock input/output. |
| 68 | S-MTOF | I | Serial communications data input. |
| 69 | S-FTOM | O | Serial communications data output. |
| 70 | XRESET (OUT) | O | Mother board reset output. |
| 71 | XCS (OSD) | O | Character generator (PD0198A), communications request output. |
| 72 | CS (DASP) | O | DSP (TC9409F-001), communications request output. |
| 73 | P9/7 | O | Not used. (N.C) |
| 74 | PA/0 | | |
| 75 | PA/1 | | |
| 76 | AVCC | I | +5V |
| 77 | KIN0 | I | Key data input. (AD input) |
| 78 | KIN1 | | |
| 79 | KIN2 | | |
| 80 | MODEL SEL | I | Model switch port. (AD input) |

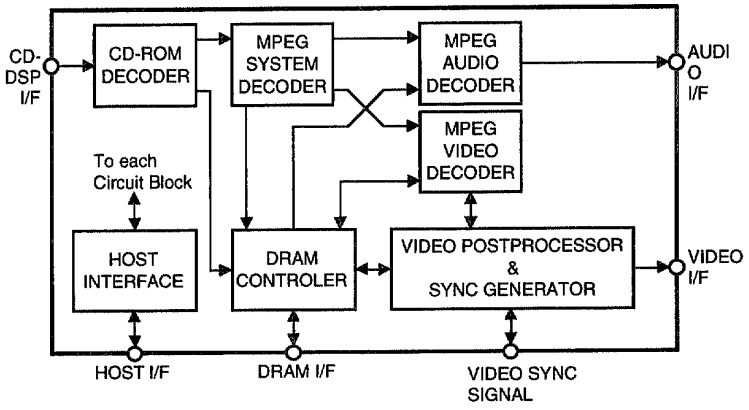
## ■ CXD1852Q (VCDB ASSY : IC101)

### • MPEG1 DECODER

### • Pin Assignment (Top View)




### • Block Diagram



## • Pin Function

| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | VSS | — | Connect to ground |
| 2 | XTL0O | O | Master clock of video decoder<br>Clock input to XTL0I or connect a oscillator between XTL0I and XTL0O.<br>Frequency is 27MHz, 28.6363MHz (NTSC 8fsc), 35.4686MHz (PAL 8fsc). |
| 3 | XTL0I | I | |
| 4 | VDD | — | +3.3V power supply |
| 5 | HA2 | I | When host interface is parallel mode, HA0-HA3, become register address input pins.<br>When host interface is serial mode, HA0 becomes serial data input pin, and HA1-HA3 are fixed to "L" level. |
| 6 | HA3 | | |
| 7 | HD0 | I/O | When host interface is parallel mode, HD0-HD7, become register data input/output pins.<br>When host interface is serial mode, HD0 becomes serial data output pin, and HD1-HD7 are fixed to "L" level. |
| 8 | HD1 | | |
| 9 | HD2 | | |
| 10 | HD3 | | |
| 11 | HD4 | | |
| 12 | HD5 | | |
| 13 | HD6 | | |
| 14 | VDD | — | +3.3V power supply |
| 15 | VSS | — | Connect to ground |
| 16 | HD7 | I/O | When host interface is parallel mode, HD0-HD7, become register data input/output pins.<br>When host interface is serial mode, HD0 becomes serial data output pin, and HD1-HD7 are fixed to "L" level. |
| 17 | MA3 | O | DRAM address signal output<br>Connect to DRAM address pins agree with number. |
| 18 | MA4 | | |
| 19 | MA2 | | |
| 20 | MA5 | | |
| 21 | MA1 | | |
| 22 | VSS | — | Connect to ground |
| 23 | MA6 | O | DRAM address signal output<br>Connect to DRAM address pins agree with number. |
| 24 | MA0 | | |
| 25 | BC | — | Test pin Set to open. |
| 26 | TCKI | | |
| 27 | TDI | | |
| 28 | TENAI | | |
| 29 | TDO | | |
| 30 | VST | — | Test pin Connect to ground. |
| 31 | VSS | — | Connect to ground |
| 32 | MA7 | O | DRAM address signal output<br>Connect to DRAM address pins agree with number. |
| 33 | MA8 | | |
| 34 | XRAS | O | Low address strobe signal output Connect to $\overline{RAS}$ signal pin of DRAM. |
| 35 | XMWE | O | Write enable signal output of DRAM Connect to $\overline{WE}$ signal pin of DRAM. |
| 36 | XCAS2/MA9 | O | Use for when connecting the 8 bit DRAM<br>When construction of DRAM is 256kw×16bit×2, connect to $\overline{CAS}$ signal pin of upper word (256k-512k-1) side DRAM (upper and lower bytes are common used). When DRAM is 512kw×8bit×2, connect to MA9 pin (two DRAMs). |
| 37 | XCAS0 | O | Column address strobe signal output of DRAM.<br>When construction of DRAM is 256kw×16bit×2, connect to $\overline{CAS}$ signal pin of lower word (0-256k-1) side DRAM (upper and lower bytes are common used). In other case, connect to all $\overline{CAS}$ signal pins of DRAM. |
| 38 | MD7 | I/O | Data signal input/output of DRAM<br>Connect to DRAM data pins agree with number. |
| 39 | MD8 | | |
| 40 | MD6 | | |
| 41 | MD9 | | |
| 42 | MD5 | | |
| 43 | MD10 | | |
| 44 | VDD | — | +3.3V power supply |
| 45 | VSS | — | Connect to ground |

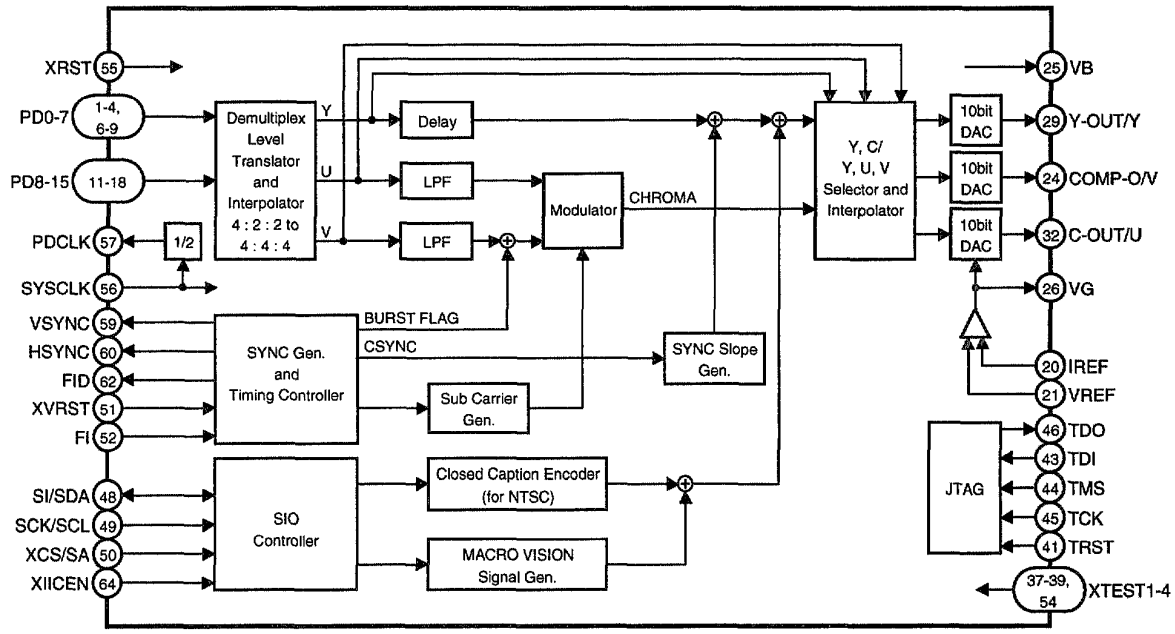
| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 46 | MD4 | I/O | Data signal input/output of DRAM<br>Connect to DRAM data pins gree with number. |
| 47 | MD11 | | |
| 48 | MD3 | | |
| 49 | MD12 | | |
| 50 | MD2 | | |
| 51 | MD13 | | |
| 52 | MD1 | | |
| 53 | MD14 | | |
| 54 | MD0 | | |
| 55 | MD15 | | |
| 56 | OSDEN | I | OSD enable signal Polarity of enable is changed by register setting. |
| 57 | OSDB | I | OSD data input<br>When input signal which input to OSDEN is enable state, entered color in the color table which setting with there inputs (3 bit) is output to the picture data. |
| 58 | OSDG | | |
| 59 | OSDR | | |
| 60 | VDD | — | +3.3V power supply |
| 61 | VSS | — | Connect to ground |
| 62 | XVOE | I | Video output enable signal pin<br>L : Picture data output and DCLK output are enabled.<br>H : Disable (High impedance) |
| 63 | R/Cr0 | O | Picture data output<br>Correspondence of output data format (RGB, YCbCr etc.) and output data are able to changed by register setting. |
| 64 | R/Cr1 | | |
| 65 | R/Cr2 | | |
| 66 | R/Cr3 | | |
| 67 | R/Cr4 | | |
| 68 | R/Cr5 | | |
| 69 | R/Cr6 | | |
| 70 | R/Cr7 | | |
| 71 | G/Y0 | | |
| 72 | G/Y1 | | |
| 73 | G/Y2 | | |
| 74 | VDD | — | +3.3V power supply |
| 75 | VSS | — | Connect to ground |
| 76 | G/Y3 | O | Picture data output<br>Correspondence of output data format (RGB, YCbCr etc.) and output data are able to changed by register setting. |
| 77 | G/Y4 | | |
| 78 | G/Y5 | | |
| 79 | G/Y6 | | |
| 80 | G/Y7 | | |
| 81 | B/Cb0 | | |
| 82 | B/Cb1 | | |
| 83 | B/Cb2 | | |
| 84 | B/Cb3 | | |
| 85 | B/Cb4 | | |
| 86 | B/Cb5 | | |
| 87 | B/Cb6 | | |
| 88 | B/Cb7 | | |
| 89 | DCLK | I/O | Dot clock (DCLK) signal pin<br>Normally, DCLK frequency is 13.5MHz. DCLK is able to input from this pin and output from this pin by dividing from clock input. |
| 90 | VDD | — | +3.3V power supply |

| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 91 | VSS | — | Connect to ground |
| 92 | HSYNC | I/O | Horizontal sync. signal pin<br>When internal sync. generator is used, outputs dot clock (DCLK) by frequency divided. When internal sync. generator is not used, it becomes input. |
| 93 | VSYNC | I/O | Vertical sync. signal pin<br>When internal sync. generator is used, outputs dot clock (DCLK) by frequency divided. When internal sync. generator is not used, it becomes input. |
| 94 | FID/FHREF | I/O | Field discrimination signal (FID) and horizontal sync. phase reference signal (FHREF) pin<br>Set this pin by register setting. When set to FID, outputs by using the internal sync. generator and inputs by not using it. "H" is correspond to odd field. When set to FHREF, outputs signal divided by XTL0. When XTL0 is 8fsc, signal becomes suitable HSYNC period and we for phase compare with HSYNC signal. |
| 95 | CBLNK/FSC | I/O | Composite blanking signal (CBLNK) and fsc signal pin<br>Set this pin by register setting. When set to CBLK, outputs by using the internal sync. generator and inputs by not using it. When set to fsc, outputs signal divided by XTL0. Divided ratio is able to selected 1/8 or 1/16. |
| 96 | CSYNC | O | Composite sync. signal pin divided by DCLK. Signal is not able to input. |
| 97 | XSGRST | I | Reset signal input of sync. generator "L" for initialize the internal sync. generator. |
| 98 | CLK0O | O | Outputs clock divided by XTL0 Divided ratio is able to selected 1/8 or 1/16. |
| 99 | DOUT | O | Audio digital output |
| 100 | DATO | O | Audio serial data output to DAC· |
| 101 | LRCO | O | L/R clock output to DAC |
| 102 | BCKO | O | Bit clock output to DAC |
| 103 | FSXI | I | Clock input for audio interface<br>Input 256fs (11.2896MHz), 384fs (16.9344MHz), 512fs (22.5792MHz) and 768fs (33.8688MHz). |
| 104 | VDD | — | +3.3V power supply |
| 105 | VSS | — | Connect to ground |
| 106 | XTL2O | O | Master clock of CD-ROM decoder and audio decoder<br>Clock input to XTL2I or connect a oscillator between XTL2I and XTL2O. Frequency is 45MHz.<br>This clock is for internal circuit, then not synchronize the input and output. |
| 107 | XTL2I | I | |
| 108 | VDD | — | +3.3V power supply |
| 109 | C2PO | I | C2 pointer input from CD-DSP Indicate the error of DATI input. |
| 110 | LRCI | I | LR clock input from CD-DSP Indicate the L ch and R ch of DATI. |
| 111 | DATI | I | Serial data input from CD-DSP |
| 112 | BCKI | I | Bit clock input from CD-DSP Clock for strobe the DATI input. |
| 113 | DOIN | I | Digital data input from CD-DSP |
| 114 | XHCS | I | Chip select signal input at register access |
| 115 | XHDT | I/O | Wait signal output at register access<br>When host interface is pararell mode only, this pin is effective. Use to pull-up for open drain operation.<br>In the serial mode, use to pull-up. |
| 116 | HRW | I | When host interface is parallel mode, this pin becomes R/$\overline{W}$ signal input.<br>When host interface is serial mode, it becomes serial clock input. |
| 117 | XHIRQ | O | Interrupt request signal output Use to pull-up for open drain operation. |
| 118 | XRST | I | Hardware reset signal input When this pin set to "L" , initialize the all operation. |
| 119 | HA0 | I | When host interface is parallel mode, HA0-HA3, become register address input pins.<br>When host interface is serial mode, HA0 becomes serial data input pin, and HA1-HA3 are fixed to "L" level. |
| 120 | HA1 | | |

## ■ CXD1913Q (VCDB ASSY : IC301)

### • DIGITAL VIDEO ENCODER

### • Block Diagram



## • Pin Function

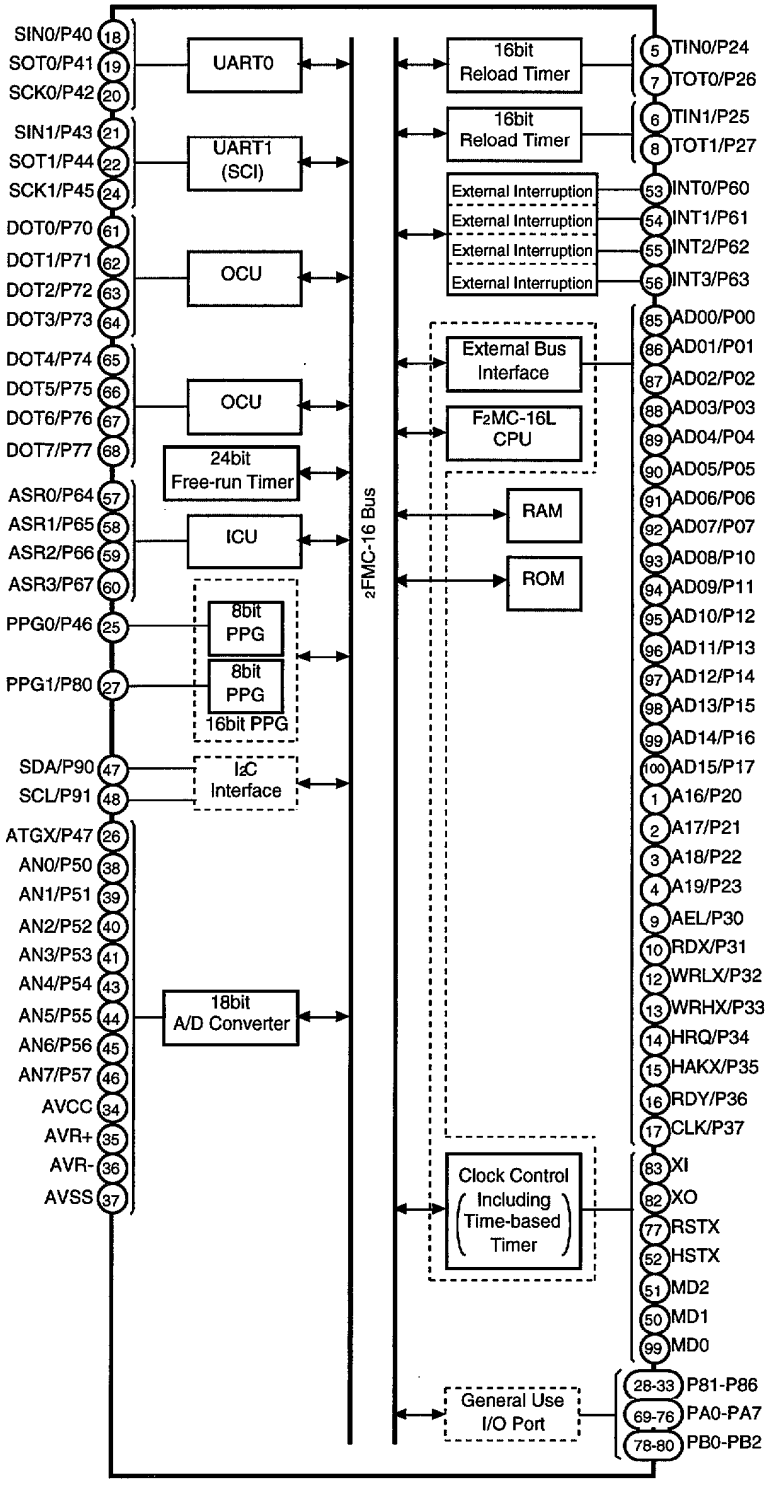
| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | PD7 | I | 8bit pixel data input<br>When PIF MODE = 0, input for Y, Cb and Cr signals which are multiplexed.<br>When PIF MODE = 1, input for Y signal. |
| 2 | PD6 | | |
| 3 | PD5 | | |
| 4 | PD4 | | |
| 5 | VSS | — | Ground for digital |
| 6 | PD3 | I | 8bit pixel data input<br>When PIF MODE = 0, input for Y, Cb and Cr signals which are multiplexed.<br>When PIF MODE = 1, input for Y signal. |
| 7 | PD2 | | |
| 8 | PD1 | | |
| 9 | PD0 | | |
| 10 | VDD | — | Power supply for digital |
| 11 | PD15/TD7 | I/O | 8bit pixel data input/test data bus<br>Whon PIF MODE = 0, there pins are not able to we.<br>When PIF MODE = 1, input for Cb and Cr signals which are multiplexed.<br>In the test mode, use for the internal circuit test data bus.<br>Test mode is opened for device vender only. |
| 12 | PD14/TD6 | | |
| 13 | PD13/TD5 | | |
| 14 | PD12/TD4 | | |
| 15 | PD11/TD3 | | |
| 16 | PD10/TD2 | | |
| 17 | PD9/TD1 | | |
| 18 | PD8/TD0 | | |
| 19 | VSS | — | Ground for digital |
| 20 | IREF | I | Reference current input<br>Connect a 16-times resister ( "16R" ) of output resistor value "R" |
| 21 | VREF | I | Reference voltage input Set the output full scale. |
| 22 | AVDD1 | — | Power supply for analog |
| 23 | AVSS1 | — | Ground for analog |
| 24 | COMP-O/V | O | 10bit D/A converter output<br>When YC/YUV = 1, outputs conposite signal.<br>When YC/YUV = 0, outputs color-difference (V) signal. |
| 25 | VB | O | Connect a about 0.1μF capacitor to VSS. |
| 26 | VG | O | Connect a about 0.1μF capacitor to AVDD. |
| 27 | AVDD2 | — | Power supply for analog |
| 28 | AVSS2 | — | Ground for analog |
| 29 | Y-OUT/Y | O | 10bit D/A converter output Outputs luminance (Y) signal. |
| 30 | AVDD3 | — | Power supply for analog |
| 31 | AVSS3 | — | Ground for analog |
| 32 | C-OUT/U | O | 10bit D/A converter output<br>When YC/YUV = 1, outputs chroma (C) signal.<br>When YC/YUV = 0, outputs color-difference (U) signal. |

| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 33 | TD10 | I/O | Test data bus Set to open.<br>In the test mode, we for the internal circuit test data bus.<br>Test mode is opened for device vender only. |
| 34 | VDD | — | Power supply for digital |
| 35 | TD9 | I/O | Test data bus Set to open.<br>In the test mode, we for the internal circuit test data bus.<br>Test mode is opened for device vender only. |
| 36 | TD8 | | |
| 37 | XTEST1 | I | Test mode control input with pull-up<br>When these pins are "H", CXD1910AQ is not test mode.<br>Test mode is opened for device vender only. |
| 38 | XTEST2 | | |
| 39 | XTEST3 | | |
| 40 | VSS | — | Ground for digital |
| 41 | TRST | I | Reset signal input for JTAG of active "L" with pull-up. |
| 42 | VDD | — | Power supply for digital |
| 43 | TDI | I | Serial data input for JTAG with pull-up |
| 44 | TMS | I | Control signal input for JTAG with pull-up |
| 45 | TCK | I | Clock input for JTAG |
| 46 | TDO | O | Serial data output for JTAG |
| 47 | VSS | — | Ground for digital |
| 48 | SI/SDA | I | This pins function is selected by XIICEN (pin 64).<br>When XIICEN is "H", it becomes SONY SIO mode and SI serial data input.<br>When XIICEN is "L", it becomes I²C-BUS mode and SDA input/output. |
| 49 | SCK/SCL | I | This pins function is selected by XIICEN (pin 64).<br>When XIICEN is "H", it becomes SONY SIO mode and SCK serial clock input.<br>When XIICEN is "L", it becomes I²C-BUS mode and SCL input. |
| 50 | XCS/SA | I | This pins function is selected by XIICEN (pin 64).<br>When XIICEN is "H", it becomes SONY SIO mode and XCS chip select input.<br>When XIICEN is "L", it becomes I²C-BUS mode and SA slave address selection input signal which selecting slave address of I²C-BUS. |
| 51 | XVRST | I | Vertical sync. reset input of active "L" with pull-up<br>Use for synchronize the external and internal vertical sync.<br>When XVRST is "L", reset the internal digital sync. generator according to FI. |
| 52 | FI | I | Field ID input<br>Indicates the field ID at vertical sync. reset.<br>H : 1st field L : 2nd field |
| 53 | VDD | — | Power supply for digital |
| 54 | XTEST4 | I | Test mode control input with pull-up<br>When these pins are H, CXD1910AQ is not test mode.<br>Test mode is opened for device vender only. |
| 55 | XRST | I | System reset input at active "L"<br>"L" for more than 40 clocks (SYSCLK) at power on reset. |
| 56 | SYSCLK | I | System clock input<br>It needs to correctly 27MHz for generating the correctly sub-carrier frequency. |
| 57 | PDCLK | O | Pixel data clock output for 13.5MHz<br>This clock is SYSCLK divided by 2. Use for 16bit pixel data mode. |
| 58 | VSS | — | Ground for digital |
| 59 | VSYNC | O | Vertical sync. signal output |
| 60 | HSYNC | O | Horizontal sync. signal output |
| 61 | SO | O | This pin's function is selectedby XIICEN (pin 64).<br>When XIICEN is "H", it becomes SONY SIO mode and SO serial out output.<br>When XIICEN is "L", this pin is not used and output becomes Hi-impedance. |
| 62 | FID | O | Field ID output<br>When FIDS = 1, L : 1st field, H : 2nd field.<br>When FIDS = 0, H : 1st field, L : 2nd field. |
| 63 | VDD | — | Power supply for digital |
| 64 | XIICEN | I | Serial interface mode selection input with pull-up<br>When this pin is "L", pins 48 to 50 and 61 become I²C-BUS mode.<br>When this pin is "H", pins 48 to 50 and 61 become SONY SIO mode. |

## ■ PD6193A (VCDB ASSY : IC501)

### • VCD CONTROL IC

### • Block Diagram

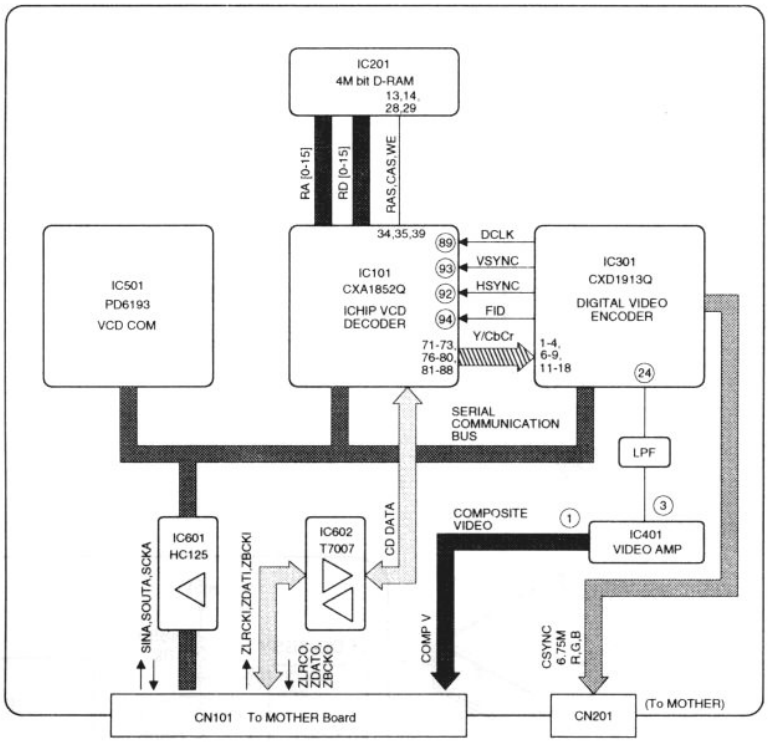


## • Pin Function

| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | P20 | I | Not used (+5V) |
| 2 | P21 | | |
| 3 | P22 | | |
| 4 | P23 | | |
| 5 | P24 | | |
| 6 | P25 | | |
| 7 | P26 | | |
| 8 | P27 | | |
| 9 | P30 | | |
| 10 | P31 | | |
| 11 | VSS | — | GND |
| 12 | P32 | I | Not used (+5V) |
| 13 | P33 | | |
| 14 | P34 | | |
| 15 | P35 | | |
| 16 | P36 | | |
| 17 | P37 | | |
| 18 | SIN0 | I | Serial data input |
| 19 | SOT0 | O | Serial data output |
| 20 | P42 | I | Not used (+5V) |
| 21 | SINC | I | Serial communication (data input) |
| 22 | SOUTB | O | Serial communication (data output) |
| 23 | VCC | I | Power supply (+5V) |
| 24 | SCKB | O | Serial communication (clock) |
| 25 | CSM | O | Communication device selection (CXD1852) |
| 26 | CSV | O | Communication device selection (CXD1913) |
| 27 | BUSW | O | Communication device selection (system controller) |
| 28 | RSTM | O | Reset (CXD1852) |
| 29 | RSTV | O | Reset (CXD1913) |
| 30 | LD/VCD | O | Select the player output screen H : Player screen L : VCD screen |
| 31 | NTSC/PAL | O | Reserve pin (+5V) |
| 32 | P85 | | |
| 33 | P86 | | |
| 34 | AVCC | I | Power supply (+5V) |
| 35 | AVR+ | I | Reference voltage of analog circuit (+5V) |
| 36 | AVR- | I | Reference voltage of analog circuit (GND) |
| 37 | AVSS | — | GND |
| 38 | P50 | I | Not used (+5V) |
| 39 | P51 | | |
| 40 | P52 | | |
| 41 | P53 | | |
| 42 | VSS | — | GND |
| 43 | P54 | I | Not used (+5V) |
| 44 | P55 | | |
| 45 | P56 | | |
| 46 | P57 | | |
| 47 | P90 | I/O | Not used (+5V) |
| 48 | P91 | | |
| 49 | MD0 | I | Operation mode setting (connect to +5V) |
| 50 | MD1 | | |
| 51 | MD2 | I | Operation mode setting (connect to GND) |
| 52 | HSTX | I | N.C. |
| 53 | TVSYNC | I | Video vertical sync. signal interruption |
| 54 | IRQM | I | CXD1852 interruption |
| 55 | REQACK | I/O | Serial communication (REQ/ENB) |
| 56 | INT3 | I | Not used (+5V) |
| 57 | OSD MODE | I | H : Color L : Monochrome (connect to +5V) |
| 58 | P65 | I | Not used (+5V) |
| 59 | P66 | | |
| 60 | COLOR BAR | I | L : Color-bar display |
| 61 | P70 | I | Reserve pin (+5V) |
| 62 | P71 | | |
| 63 | P72 | | |
| 64 | P73 | | |
| 65 | P74 | | |
| 66 | P75 | | |
| 67 | P76 | | |
| 68 | P77 | | |
| 69 | PA0 | I | Not used (+5V) |
| 70 | PA1 | | |
| 71 | PA2 | | |
| 72 | PA3 | | |
| 73 | PA4 | | |
| 74 | PA5 | | |
| 75 | PA6 | | |
| 76 | PA7 | | |
| 77 | XRST | I | External reset request input |
| 78 | PB0 | I | Not used (+5V) |
| 79 | PB1 | | |
| 80 | PB2 | | |
| 81 | VSS | — | GND |
| 82 | X0 | I | Pins for crystal oscillator (4MHz) |
| 83 | X1 | O | |
| 84 | VCC | I | Power supply (+5V) |
| 85 | P00 | I | Not used (+5V) |
| 86 | P01 | | |
| 87 | P02 | | |
| 88 | P03 | | |
| 89 | P04 | | |
| 90 | P05 | | |
| 91 | P06 | | |
| 92 | P07 | | |
| 93 | P10 | | |
| 94 | P11 | | |
| 95 | P12 | | |
| 96 | P13 | | |
| 97 | P14 | | |
| 98 | P15 | | |
| 99 | P16 | | |
| 100 | P17 | | |

# 4. VCD INFORMATION

## 4.1 VCDB ASSY BLOCK DIAGRAM




## 4.2 VCDB ASSY:ERROR DISPLAY AND TEST MODE

Item

1) SELF-DIAGNOSIS FUNCTION (ERROR DISPLAY)
2) VCD COLOR-BAR OUTPUT

### 1) SELF-DIAGNOSIS FUNCTION (ERROR DISPLAY)

One of the following error codes will be displayed on the OSD, FL or LED display when an error has occurred. The display goes blank when entry from the keyboard begins. Press and hold the CLEAR key for more than five seconds if you wish the error code displayed again.

Error codes

J1 Communications error between the microprocessor (IC501) on the VCDB ASSY and the mode controller.
J2 Communications error between the microprocessor (IC501) on the VCDB ASSY and IC101.
J3 Communications error between the microprocessor (IC501) on the VCDB ASSY and IC301.

Possible causes for error J1

Broken communications link (incomplete connection of the CN101 connector).
Power supply malfunctioning.
VCD microprocessor (IC501) on the VCDB ASSY malfunctioning.
Communications line buffer (IC601) on the VCDB ASSY malfunctioning.

Possible causes for error J2

VCD microprocessor (IC501) on the VCDB ASSY malfunctioning.
Communications line buffer (IC601) on the VCDB ASSY malfunctioning.
Buffers (IC601 and IC603) on the VCDB ASSY malfunctioning.
MPEG decoder (IC101) on the VCDB ASSY malfunctioning.

Possible causes for error J3

VIDEO encoder (IC301) on the VCDB ASSY malfunctioning.
Communication link between IC501 and IC301 of the VCDB ASSY incomplete.

### 2) VCD COLOR-BAR OUTPUT

The VCDB ASSY (versions VWV1508 and higher) have a test mode that generates color bars from the board. (Using this test mode allows you to accurately judge this aspect of ~~the video output system of the VCDB ASSY.)

To enter VCD Color-Bar Test mode, proceed as follows:

Preparation

Turn the power of the main unit OFF, then open the case.

Testing

Attach a chip jumper to "R558" (indicated on the VCDB ASSY) located on the soldered surface of the VCDB ASSY, then ground Pin 60 of IC501. The VCDB ASSY will continuously output color bars at 100% when the power is turned ON again.
Insert the video CD disc.

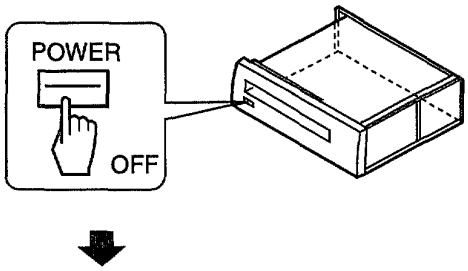
## 4.3 VCD COLOR-BAR OUTPUT

The VCDB ASSY have the test mode which output the color-bar signal independently.

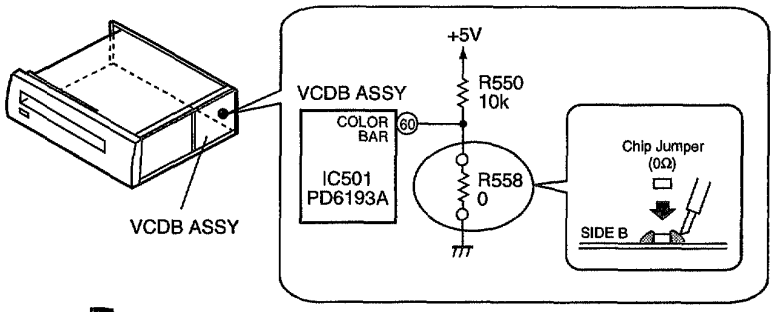
## 4.4 VCD COLOR-BAR TEST MODE

**Color-bar TEST MODE:ON**

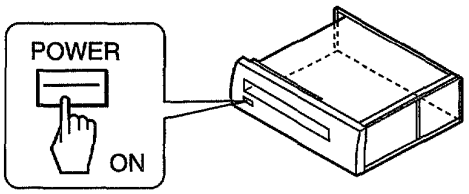
① Power OFF



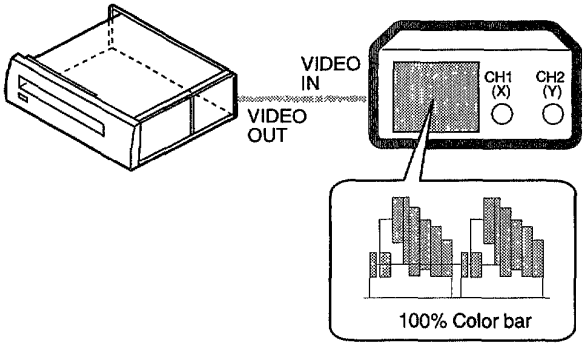

② Mount R558 (0Ω)




③ Power ON




④ 100% Color-bar Output



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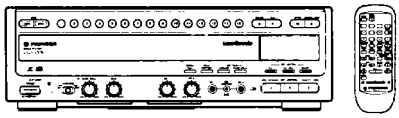
# Service Manual



ORDER NO.
**RRV1638**

## CD/LD PLAYER
# CLD-100K

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

| Type | Model | Power Requirement | Remarks |
|---|---|---|---|
| | CLD-100K | | |
| TD | O | AC110 – 240V | |
| TL | O | AC110 – 240V | |

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T-FFB JUNE 1996 Printed in Japan

# 1. SAFETY INFORMATION

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER
Kuva 1
Lasersateilyn varoitusmerkki

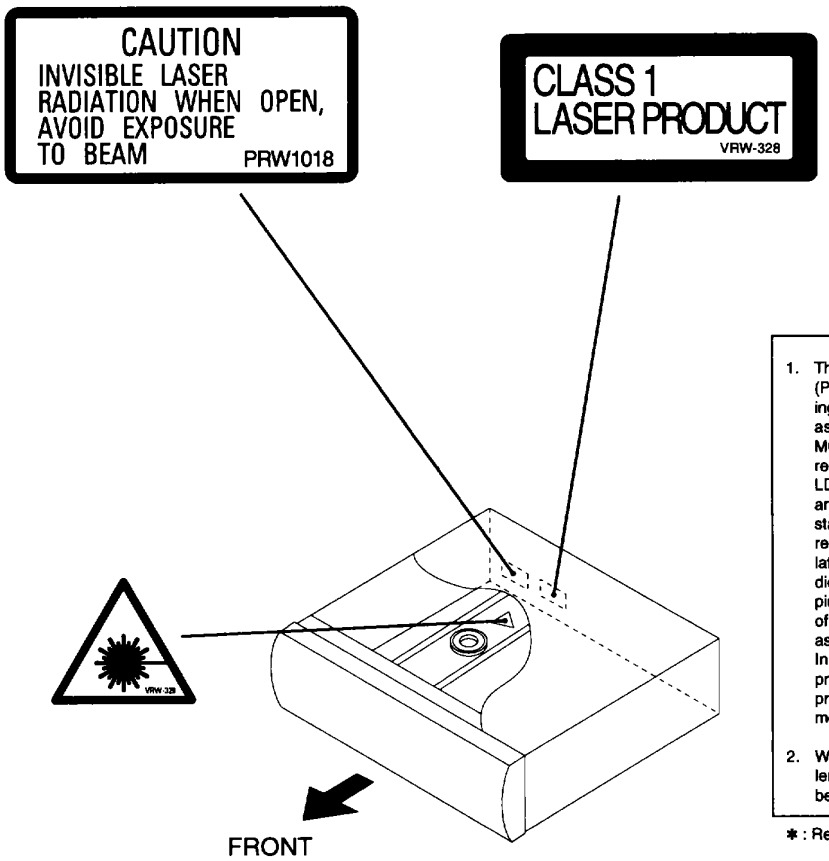
WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LASER
Picture 1
Warning sign for laser radiation

## LABEL CHECK (for TL type)




### Additional Laser Caution

1. The ON/OFF statuses of the slider position detection switches (PARK INNER, PARK OUTER on the PKSB assy), and loading-status detection switchies (SW 1, 2 and 3 on the LMSB assy) are detected by the microprocessor (IC101 in the MOTHER assy). To permit the laser diode to oscillate, it is required to set the slider-position detection switches for the LD ACTIVE status (PARK INNER : OFF, PARK OUTER : OFF), and to set the loading-status detection switches for tilt neutral state (SW1 : OFF, SW2 : OFF, SW3 : ON). As long as these requirements are not satisfied, the laser diode will not oscillate. When the requirements are met in any way, the laser diode can oscillate. The laser diode oscillation will continue it pin 13 of IC801 is shorted to GND or the emitter and collector of Q834 are shorted each other (fault condition) in MOTHER assy.
   In the test mode ✱, the laser diode oscillates when the microprocessor detects a PLAY signal, or when the PLAY key is pressed (S102 ON in the FLKB assy), with the above requirements satisfied.
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

✱ : Refer to pages 39 and 40.

# 2. PACKING, EXPLODED VIEWS AND PARTS LIST

*NOTES:*

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *Parts list without notice are common for CLD-100K/TD and CLD-100K/TL.*

## 2.1 PACKING

### (1) CONTRAST OF CLD-100K/TD AND TL

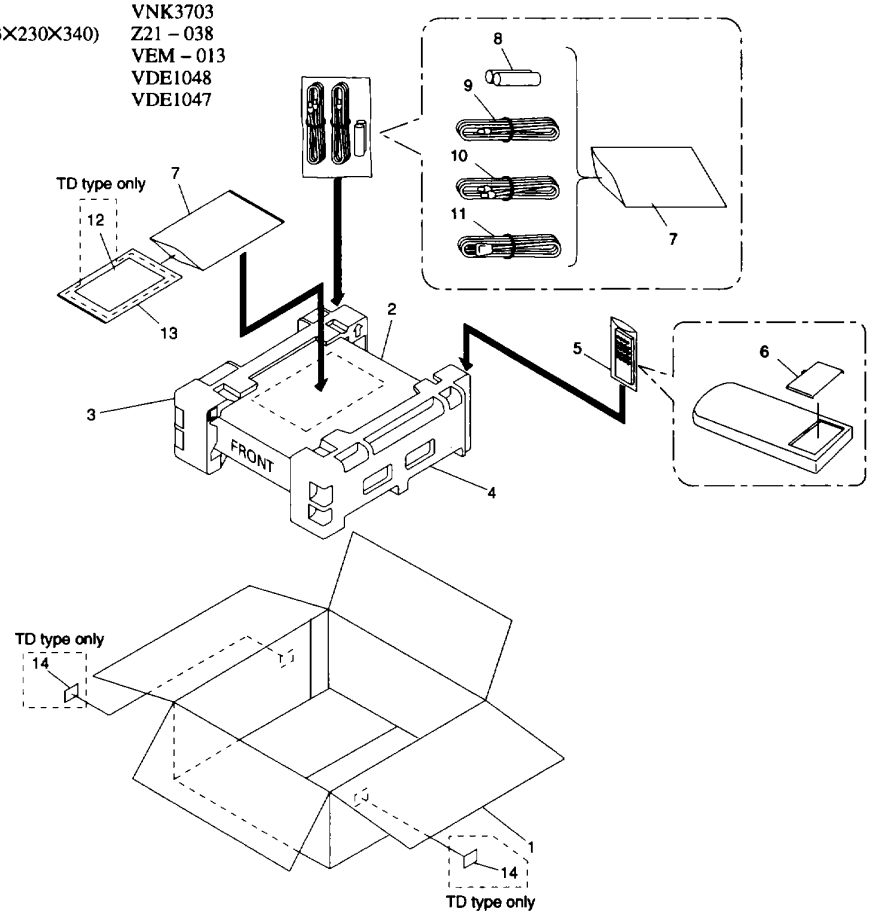
CLD-100K/TL and TD have the same construction except for the following:

| Mark | No. | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|---|
| | | | TD type | TL type | |
| ⚠ NSP | 11 | AC Power Cord | ADG1158 | ADG1154 | |
| | 12 | Warranty card | ARW1020 | Not used | |
| | 13 | Operating Instructions (English/Spanish/Chinese) | VRE1049 | Not used | |
| | 13 | Operating Instructions (English/Chinese) | Not used | VRE1052 | |
| | 14 | TD Label | VRW1606 | Not used | |

### (2) PARTS LIST FOR CLD-100K/TD

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | Packing Case | VHG1584 |
| | 2 | Mirror Mat Sheet | DHL1006 |
| | 3 | Pad L | VHA1177 |
| | 4 | Pad R | VHA1178 |
| | 5 | Remote Control Unit(CU – CLD137) | VXX2452 |
| | 6 | Battery Cover | VNK3703 |
| | 7 | Polyethylene Bag(0.03X230X340) | Z21 – 038 |
| NSP | 8 | Battery (R6P, AA) | VEM – 013 |
| | 9 | Video Cord | VDE1048 |
| | 10 | Audio Cord | VDE1047 |

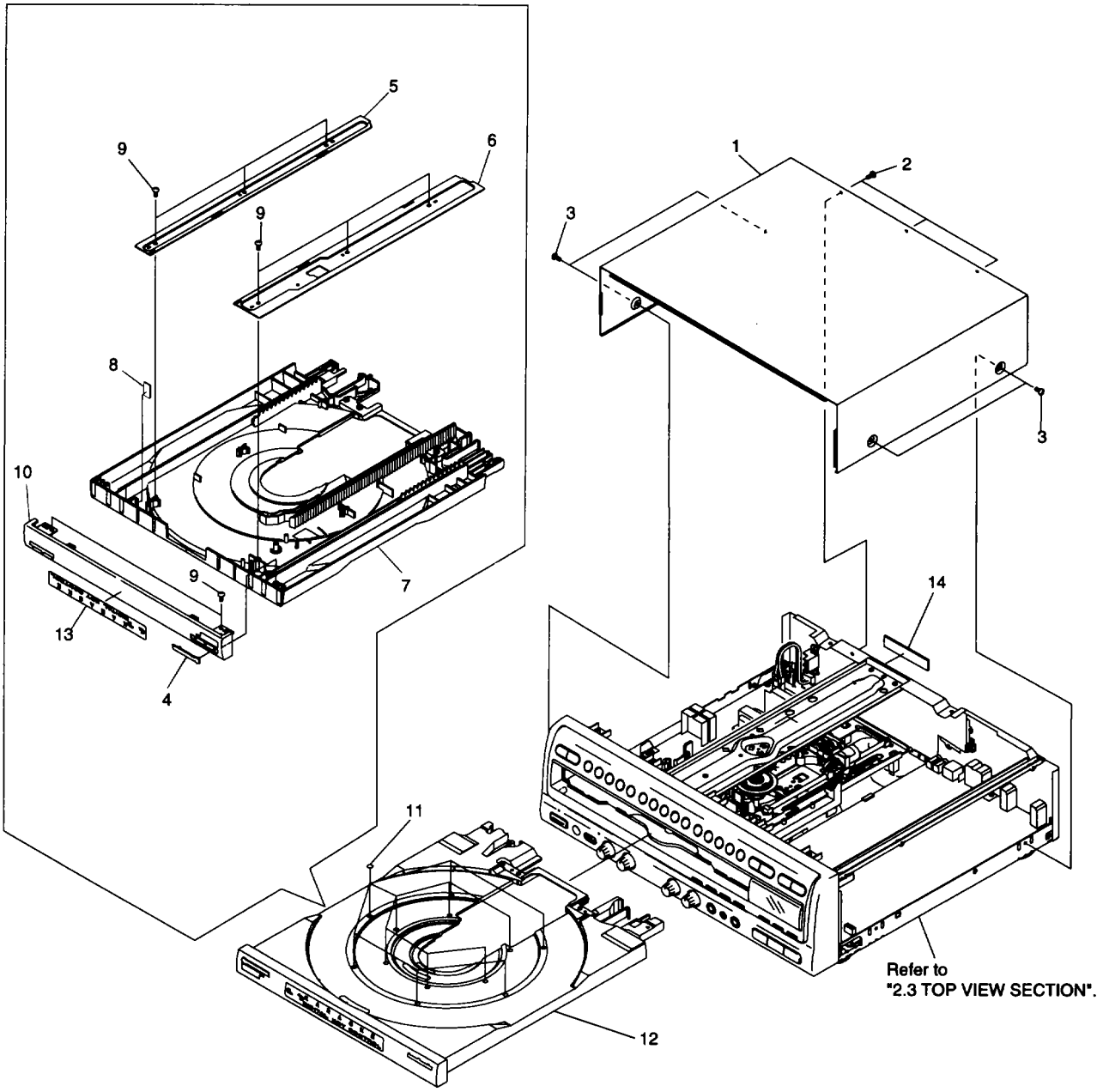
| Mark | No. | Description | Parts No. |
|---|---|---|---|
| ⚠ NSP | 11 | AC Power Code | ADG1158 |
| | 12 | Warranty Card | ARW1020 |
| | 13 | Operating Instructions (English/Spanish/Chinese) | VRE1049 |
| | 14 | TD Label | VRW1606 |



## 2.2 EXTERIOR AND DISC TRAY SECTION

### Parts List

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | Bonnet Case – S | VXX2252 |
| | 2 | Screw | BBZ30P080FMC |
| | 3 | Screw | BCZ40P060FZK |
| | 4 | Name Plate | PAM1704 |
| | 5 | Guide Plate (R) | VNE1939 |
| | 6 | Guide Plate (L) | VNE1938 |
| NSP | 7 | Tray | VNK3780 |
| | 8 | Damp Cushion | VEC1683 |
| | 9 | Screw | BBZ30P080FMC |
| | 10 | Tray Panel | VNK3726 |
| | 11 | Cushion | VEC1682 |
| | 12 | Tray Assy – S | VXX2433 |
| NSP | 13 | Getter | VRW1588 |
| NSP | 14 | Rear Spacer | VEC1866 |




**NOTE : Screws adjacent to ▼ mark on product are used for disassembly.**

## 2.3 TOP VIEW SECTION

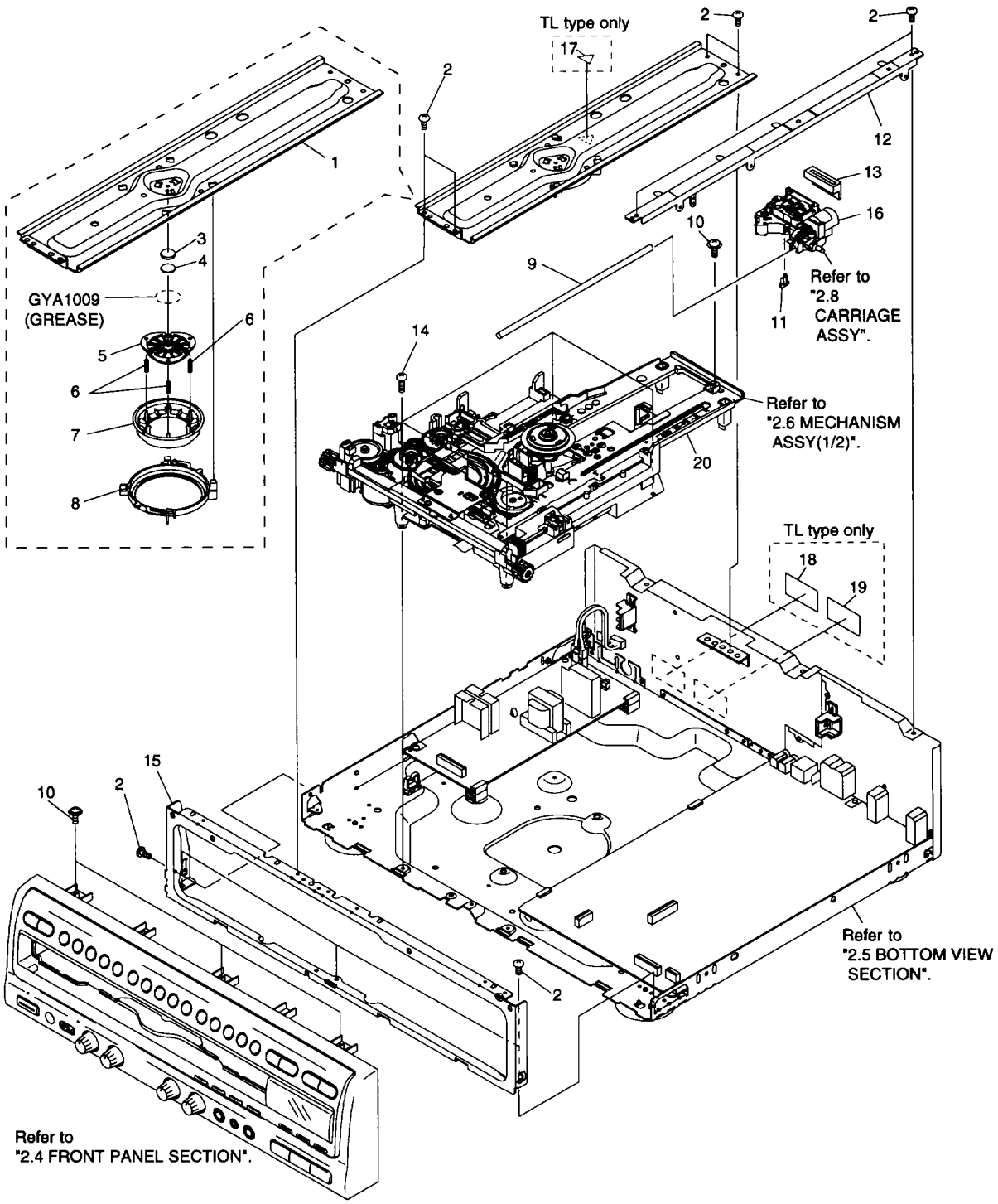
### (1) CONTRAST OF CLD-100K/TD AND TL

CLD-100K/TL and TD have the same construction except for the following:

| Mark | No. | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|---|
| | | | TD type | TL type | |
| | 17 | Caution Label (G) | Not used | VRW – 329 | |
| | 18 | Caution Label | Not used | PRW1018 | |
| NSP | 19 | Caution Label (F) | Not used | VRW – 328 | |

### (2) PARTS LIST FOR CLD-100K/TD

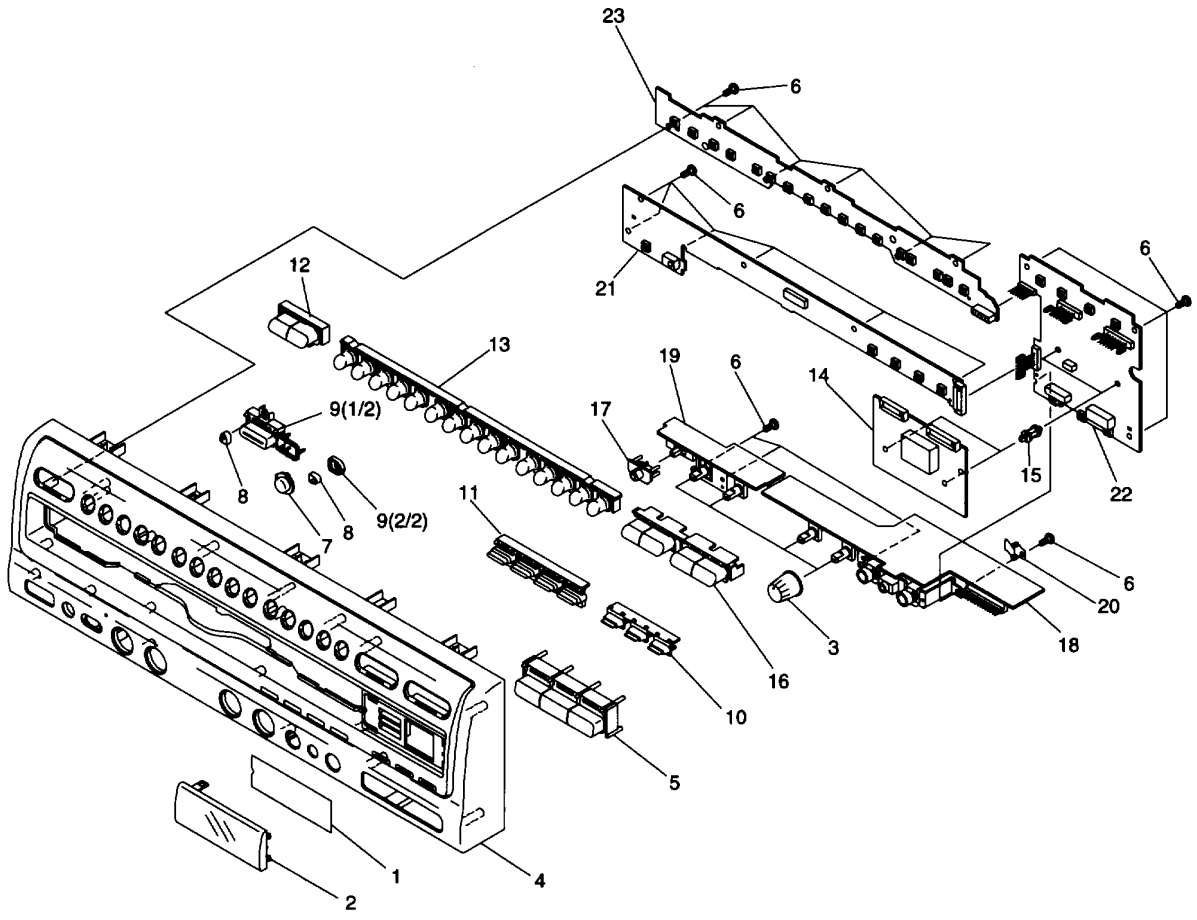
| Mark | No. | Description | Parts No. | Mark | No. | Description | Parts No. |
|---|---|---|---|---|---|---|---|
| | 1 | Clamper Arm | VNE2022 | | 11 | CA Hook | VNL1698 |
| | 2 | Screw | BBZ30P080FMC | NSP | 12 | PCB Holder | VNE1964 |
| | 3 | Rubber Mat | VEB1114 | | 13 | FFC Holder | VNL1706 |
| | 4 | Thrust Holder | VNL1663 | | 14 | Screw | BBZ30P100FMC |
| | 5 | Clamper Head | VNL1649 | NSP | 15 | Panel Holder | VNA1507 |
| | 6 | Clamp Spring | VBH1192 | | 16 | Carriage Assy | VWT1110 |
| | 7 | Clamper | VNL1648 | | 17 | ..... | |
| | 8 | Clamper Holder | VNL1636 | | 18 | ..... | |
| | 9 | Shaft | VLL1481 | | 19 | ..... | |
| | 10 | Screw | IBZ30P080FMC | NSP | 20 | Mechanism Assy | VWT1109 |


TL type only
17
2
2
2
1
12
13
16
10
3
4
9
GYA1009
(GREASE)
6
5
6
7
8
14
11
Refer to
"2.8
CARRIAGE
ASSY".
Refer to
"2.6 MECHANISM
ASSY(1/2)".
20
TL type only
18
19
15
10
2
2
2
Refer to
"2.5 BOTTOM VIEW
SECTION".
Refer to
"2.4 FRONT PANEL SECTION".

## 2.4 FRONT PANEL SECTION

### Parts List

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | Display Sheet | VEC1872 |
| | 2 | Sub Panel | VNK3727 |
| | 3 | VR Knob | VNK3677 |
| | 4 | Front Panel | VNK3725 |
| | 5 | Key Control Button | VNK3674 |
| | 6 | Screw | BBZ30P080FMC |
| | 7 | IR Window | VNK2246 |
| | 8 | LED Lens | PNW2019 |
| | 9 | Power Button | VNK3179 |
| | 10 | LED Lens | VNK3730 |
| | 11 | L Key A | VNK3688 |
| | 12 | Skip Button | VNK3775 |
| | 13 | 15 Key | VNK3771 |
| NSP | 14 | LEDB Assy | VWG1774 |
| | 15 | PC Support | DEC1044 |
| | 16 | Play Button | VNK3728 |
| | 17 | Slide Knob | VNK3187 |
| | 18 | JACB Assy | VWV1500 |
| NSP | 19 | VRSB Assy | VWG1775 |
| | 20 | Earth Plate | VNE2027 |
| NSP | 21 | KALB Assy | VWG1776 |
| | 22 | MOCB Assy | VWG1773 |
| NSP | 23 | DIKB Assy | VWG1777 |


23
6
6
21
6
12
13
19
6
14
9(1/2)
17
8
15
22
8
9(2/2)
11
7
6
20
3
18
16
10
5
1
4
2

## 2.5 BOTTOM VIEW SECTION

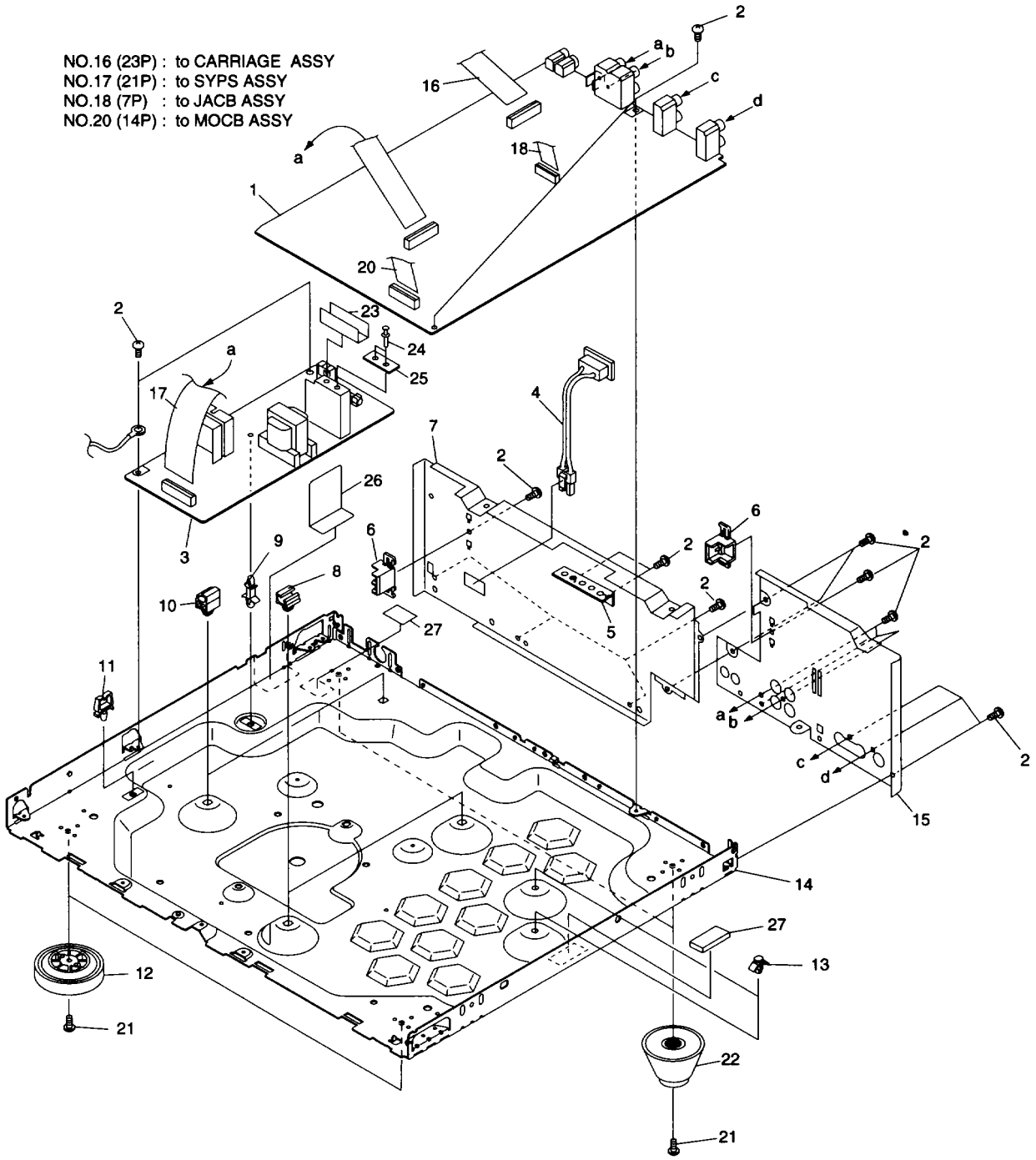
### (1) CONTRAST OF CLD-100K/TD AND TL

CLD-100K/TL and TD have the same construction except for the following:

| Mark | No. | Symbol & Description | Part No. | |
|---|---|---|---|---|
| | | | TD type | TL type |
| | 7 | Rear Panel R | VNA1750 | VNA1789 |

### (2) PARTS LIST FOR CLD-100K/TD

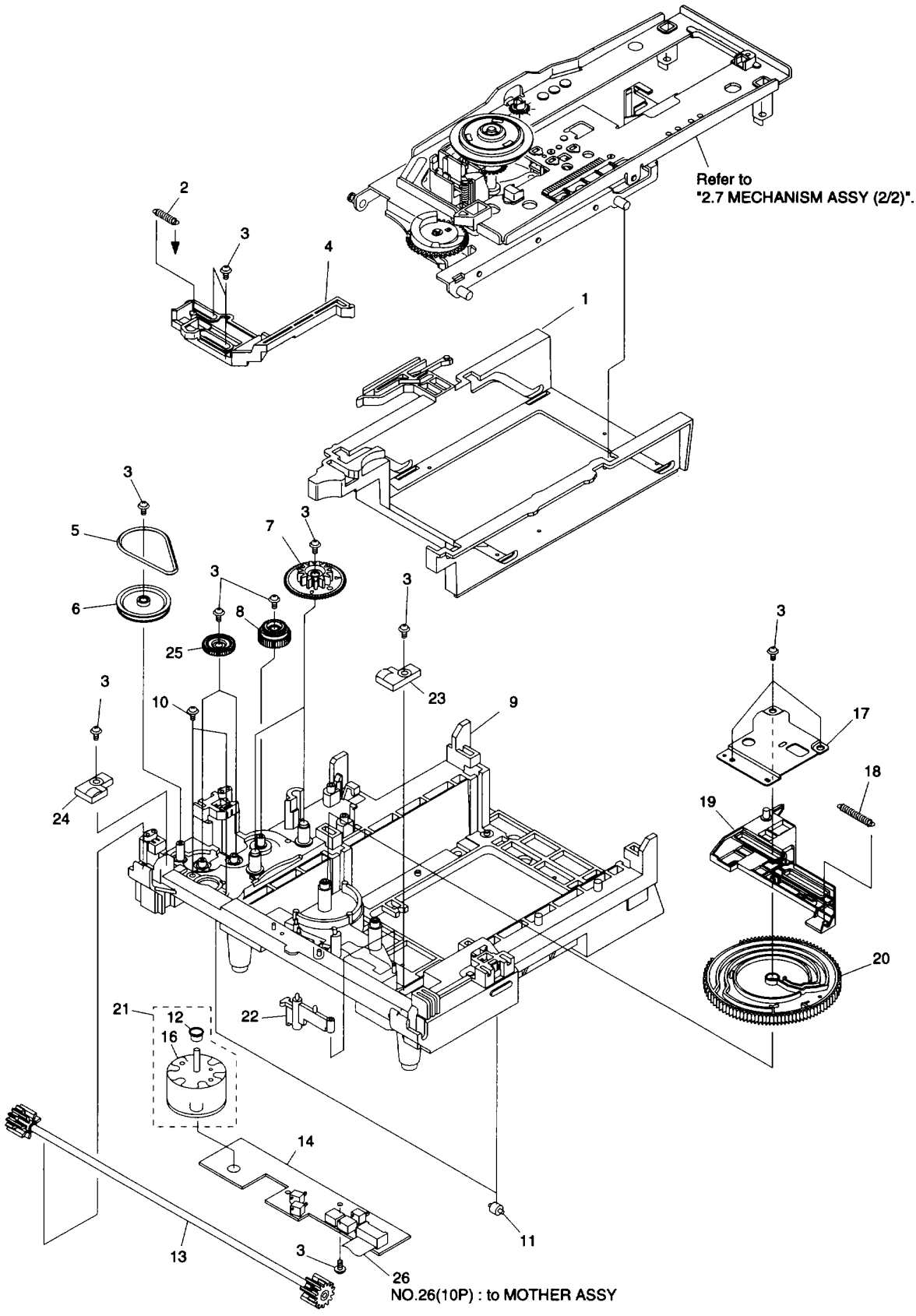
| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | Mother Assy | VWS1254 |
| | 2 | Screw | BBZ30P080FMC |
| ⚠ | 3 | SYPS Assy | VWR1233 |
| ⚠ | 4 | AC Inlet Assy | VKP2116 |
| | 5 | Rear Angle | VNE2024 |
| | 6 | Tray Stopper | VNL1657 |
| | 7 | Rear Panel R | VNA1750 |
| NSP | 8 | P Plate Holder | PNY – 405 |
| NSP | 9 | PC Support | VEC – 269 |
| NSP | 10 | PCB Hinge | VEC1174 |
| NSP | 11 | Wire Clip (H) | VEC1181 |
| | 12 | Insulator | PNW1912 |
| | 13 | Card Spacer | VEC1708 |
| NSP | 14 | Chassis | VNA1461 |
| | 15 | Rear Panel L | VNA1776 |
| | 16 | Flexible Cable (23P) | VDA1464 |
| | 17 | Flexible Cable (21P) | VDA1465 |
| | 18 | Flexible Cable (7P) | VDA1555 |
| | 19 | ..... | |
| | 20 | Flexible Cable (14P) | VDA1554 |
| | 21 | Screw | BBZ30P100FMC |
| | 22 | Insulator Assy | VXA2295 |
| | 23 | Barrier Sheet | VEC1877 |
| | 24 | Rivet | DEC – 176 |
| | 25 | Barrier Sheet | VEC1878 |
| NSP | 26 | Barrier Sheet | VEC1869 |
| | 27 | Spacer | PEB1275 |


NO.16 (23P) : to CARRIAGE ASSY
NO.17 (21P) : to SYPS ASSY
NO.18 (7P) : to JACB ASSY
NO.20 (14P) : to MOCB ASSY

## 2.6 MECHANISM ASSY (1/2)

### Parts List

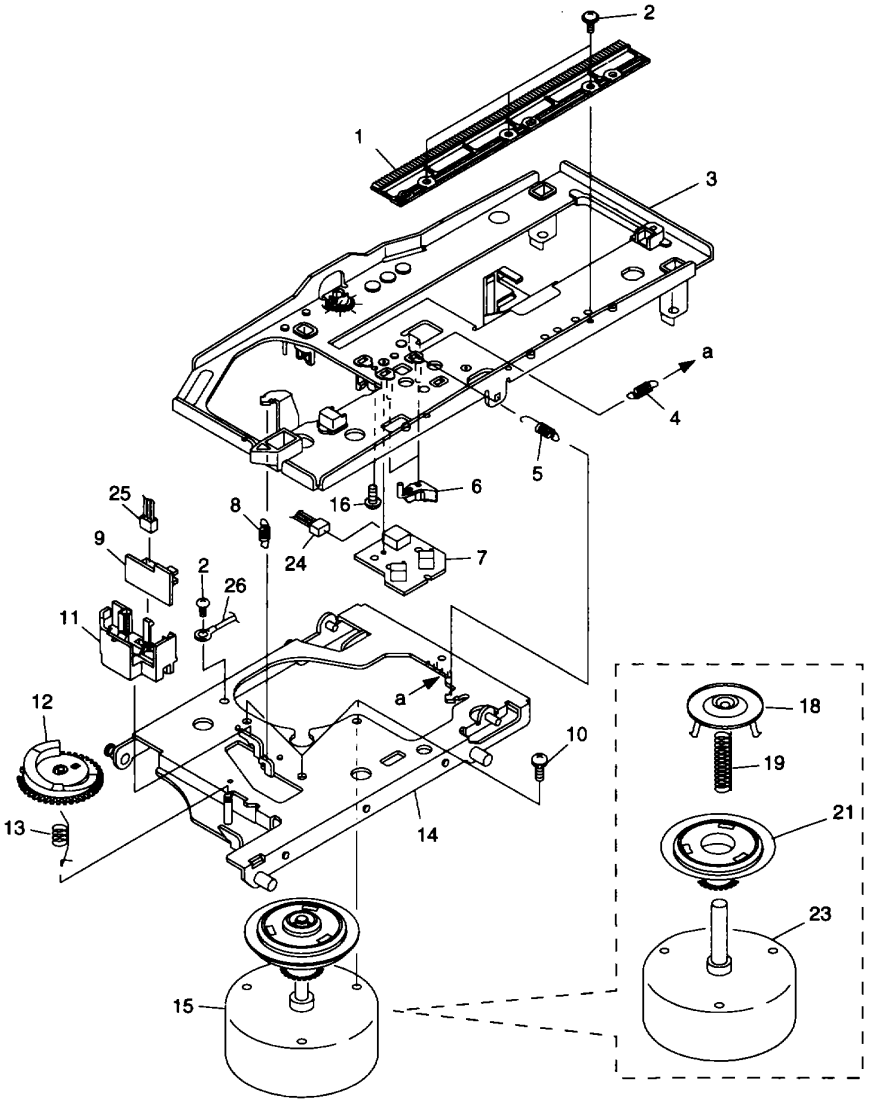
| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | Clamp Cam | VNL1633 |
| | 2 | CDP Spring | VBH1191 |
| | 3 | Screw | Z39 – 019 |
| | 4 | CD Plate | VNL1632 |
| | 5 | Rubber Belt | VEB1184 |
| | 6 | Gear Pulley | VNL1662 |
| | 7 | Twin Gear | VNL1626 |
| | 8 | Center Gear | VNL1660 |
| | 9 | Mechanism Base | VNK3239 |
| | 10 | Screw | BMZ26P040FMC |
| | 11 | Roller | VNL1042 |
| NSP | 12 | Motor Pulley | VNL1630 |
| | 13 | Synchro Gear Assy | VXA2105 |
| NSP | 14 | LMSB Assy | VWG1554 |
| | 15 | ..... | |
| NSP | 16 | Carriage Motor | VXM1033 |
| | 17 | Shaft Holder | VNE1942 |
| | 18 | CAS Spring | VBH1190 |
| | 19 | Cam Plate | VNL1631 |
| | 20 | Cam Gear | VNL1625 |
| | 21 | Loading Motor Assy | VXX2045 |
| | 22 | MB – Switch Lever | VNL1664 |
| | 23 | Slider (R) | VNL1666 |
| | 24 | Slider (L) | VNL1665 |
| | 25 | Double Gear | VNL1661 |
| | 26 | Flexible Cable (10P) | VDA1466 |


Refer to
"2.7 MECHANISM ASSY (2/2)".
NO.26(10P) : to MOTHER ASSY

## 2.7 MECHANISM ASSY (2/2)

### Parts List

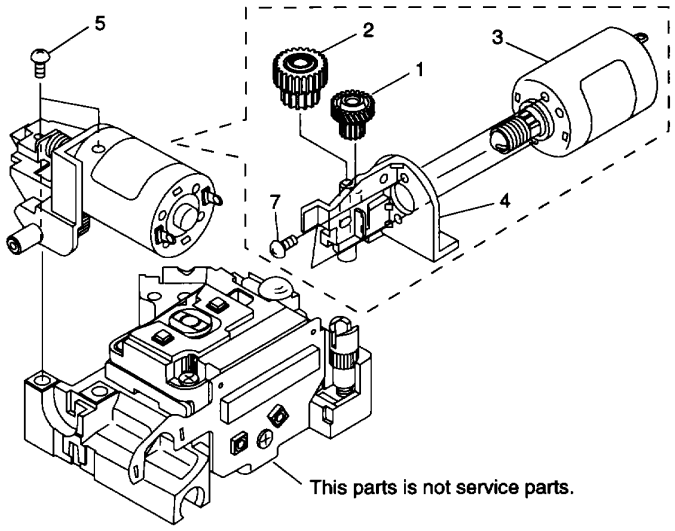
| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | CA Rack | VNL1647 |
| | 2 | Screw | IBZ26P060FMC |
| | 3 | Tilt Base | VNL1642 |
| | 4 | Radial Spring | VBH1246 |
| | 5 | Thrust Spring | VBH1245 |
| | 6 | CA – Switch Lever | VNL1644 |
| NSP | 7 | PKSB Assy | VWG1555 |
| | 8 | Tilt Tension Spring | VBH1244 |
| NSP | 9 | FG Assy | VWG1556 |
| | 10 | Screw | PMA30P050FMC |
| | 11 | FG Base | VNL1645 |
| | 12 | Tilt Cam | VNL1643 |
| | 13 | Tilt Cam Spring | VBH1243 |
| | 14 | Motor Base | VNE1941 |
| | 15 | Spindle Motor Assy | VXA2125 |
| | 16 | Screw | IBZ26P120FMC |
| | 17 | ..... | |
| | 18 | Centering Hab | VNL1623 |
| | 19 | Centering Spring | VBH1083 |
| | 20 | ..... | |
| NSP | 21 | R – Turn Table Assy | VXA2216 |
| | 22 | ..... | |
| NSP | 23 | Spindle Motor | VXM1057 |
| | 24 | Housing ASSY(3P:blue) | VKP2045 |
| | 25 | Housing ASSY(3P:yellow) | VKP2046 |
| NSP | 26 | Earth Lead Unit | XDF – 507 |



## 2.8 CARRIAGE ASSY

### Parts List

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | CA Gear (A) | VNL1638 |
| | 2 | CA Gear (B) | VNL1639 |
| | 3 | Slider Motor Assy | VXX2082 |
| | 4 | Motor Holder | VNL1700 |
| | 5 | Screw | PBZ20P050FMC |
| | 6 | ..... | |
| | 7 | Screw | PMZ20P030FMC |



# 3. SCHEMATIC AND PCB CONNECTION DIAGRAMS

**NOTE FOR SCHEMATIC DIAGRAMS** (Type 4A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/voltage(V) unless othrewise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ▭ or ← V:
   DC voltage (V) in PLAY mode unless otherwise noted.
   ⇦ mA or ← mA:
   DC current in PLAY mode unless otherwise noted.
   Value in ( ) is DC current in STOP mode.
7. **OTHERS:**
   • ⊘ or ⊘ : Adjusting point.
   • ◄ : Measurement point.
   • The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH-□ ON THE SCHEMATIC DIAGRAM:**
   • SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

| LMSB ASSY | KALB ASSY | DIKB ASSY |
|---|---|---|
| S101 : SW1 | S201 : POWER ON | S301 : ⏮ |
| S102 : SW2 | S206 : SINGLE PLAY | S302 : ⏭ |
| S103 : SW3 | S207 : VOCAL PARTNER | S303 : 1 |
| PKSB ASSY | S208 : ONE TOUCH KARAOKE | S304 : 2 |
| S104 : OUTER | S209 : GUIDE VOCAL | S305 : 3 |
| S105 : INNER | VRSB ASSY | S306 : 4 |
| MOCB ASSY | S601 : MODE SELECTION | S307 : 5 |
| S101 : PAUSE | | S308 : 6 |
| S102 : PLAY | | S309 : 7 |
| S103 : STOP | | S310 : 8 |
| S104 : OPEN/CLOSE | | S311 : 9 |
| S105 : FLAT | | S312 : 10 |
| S106 : NATURAL | | S313 : 11 |
| S107 : SHARP | | S314 : 12 |
| | | S315 : 13 |
| | | S316 : 14 |
| | | S317 : 15 |

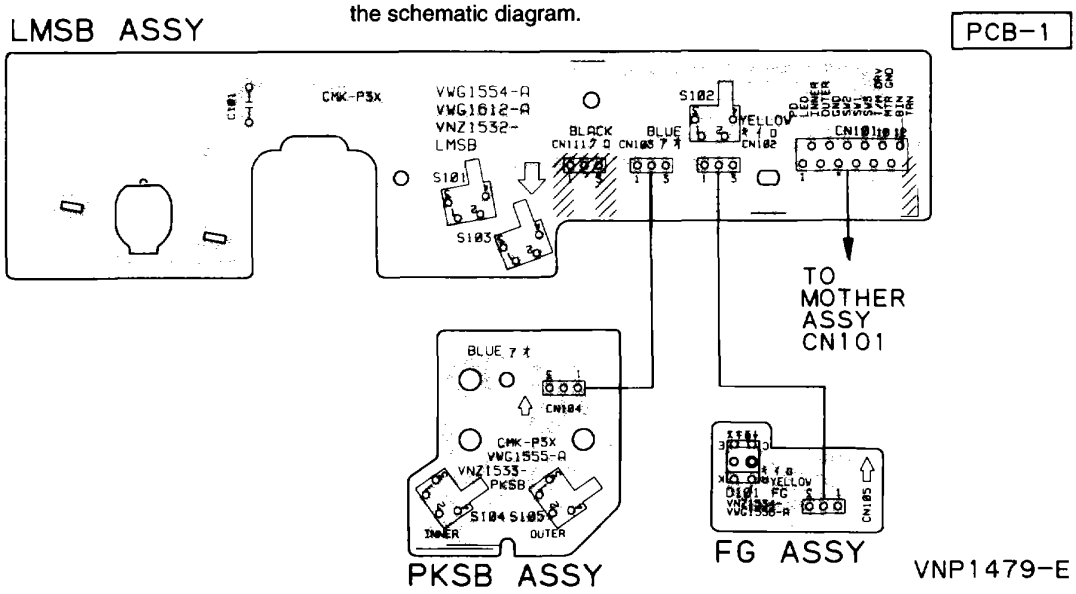
**NOTE FOR PCB DIAGRAMS**

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

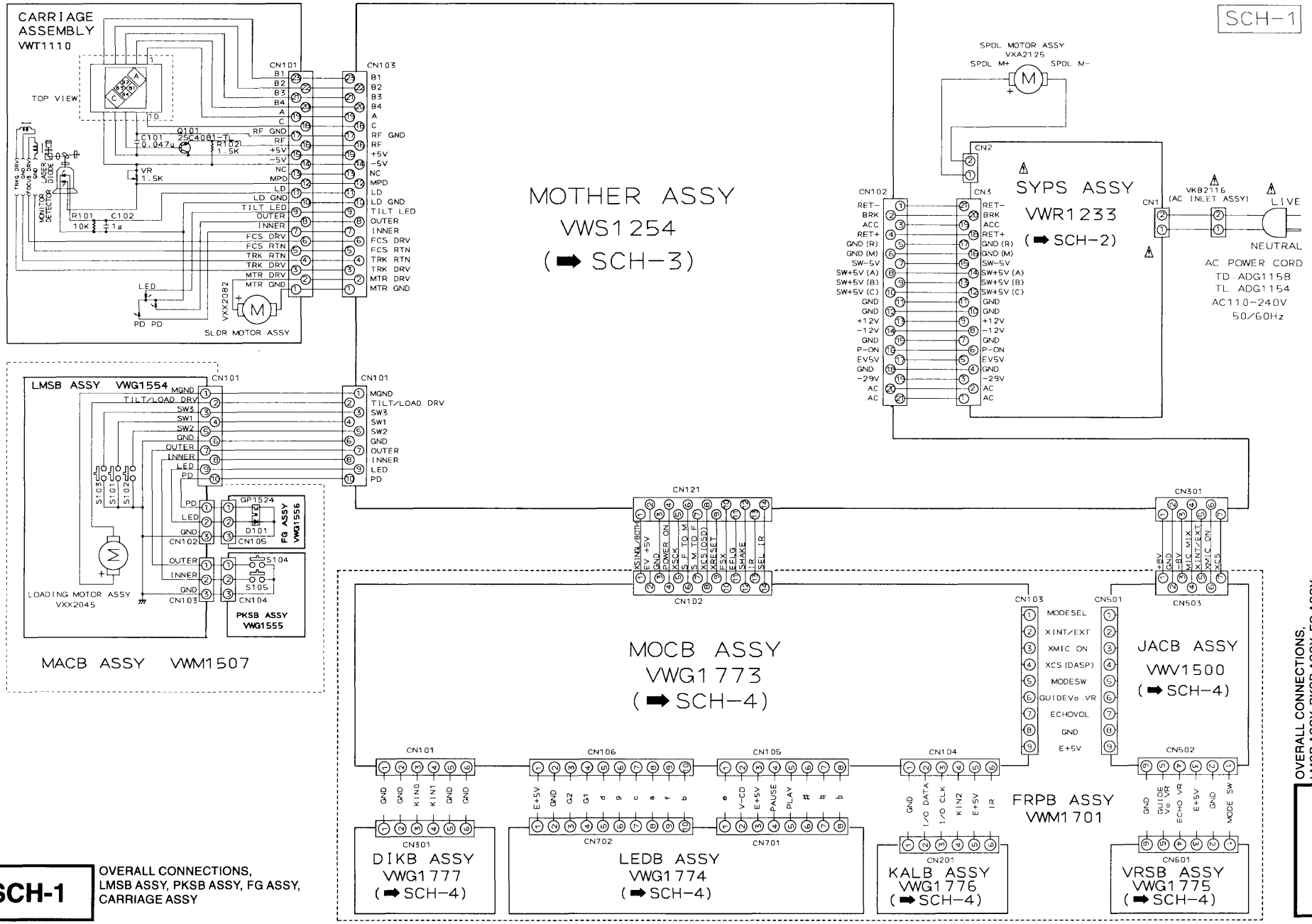
| Symbol in PCB Diagrams | Symbol in Schematic Diagrams | Part Name |
|---|---|---|
| B C E | B C E B C E | Transistor |
| B C E | B C E B C E | Transistor with resistor |
| D G S | D G S D G S | Field effect transistor |
| | | Resistor array |
| | | 3-terminal regulator |

- This diagram is viewed from the mounted parts side.
- The parts mounted on this PCB include all necessary parts for several destinations.
  For further information for respective destinations, be sure to check with the schematic diagram.

PCB-1



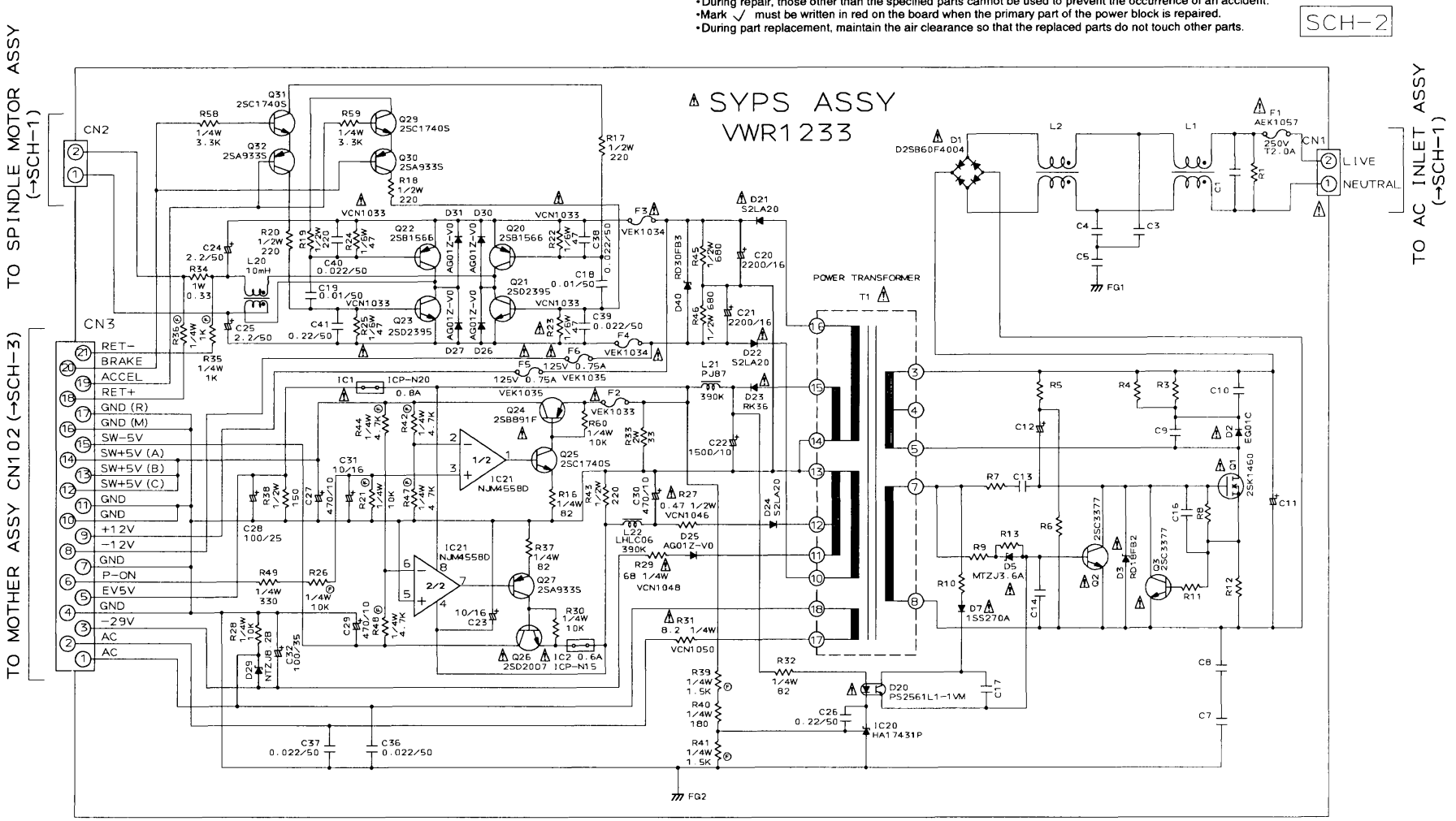
### 3.1 OVERALL CONNECTIONS, LMSB, PKSB, FG AND CARRIAGE ASSEMBLIES



### 3.2 SYPS ASSEMBLY

**《Caution on repair the primary side parts of the SYPS assy》**

- During repair, those other than the specified parts cannot be used to prevent the occurrence of an accident.
- Mark ✓ must be written in red on the board when the primary part of the power block is repaired.
- During part replacement, maintain the air clearance so that the replaced parts do not touch other parts.

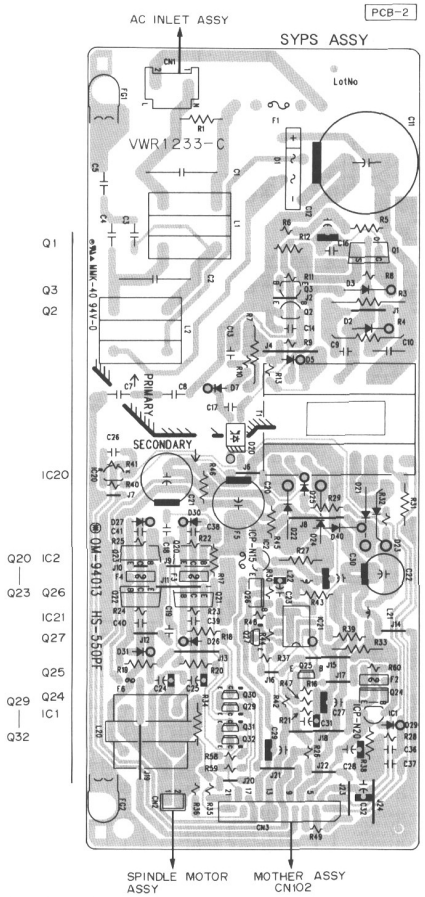



● NOTE FOR FUSE REPLACEMENT

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE NO. ICP-N20, MFD BY ROHM CO., LTD, FOR IC1.

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE NO. ICP-N15, MFD BY ROHM CO., LTD, FOR IC2.

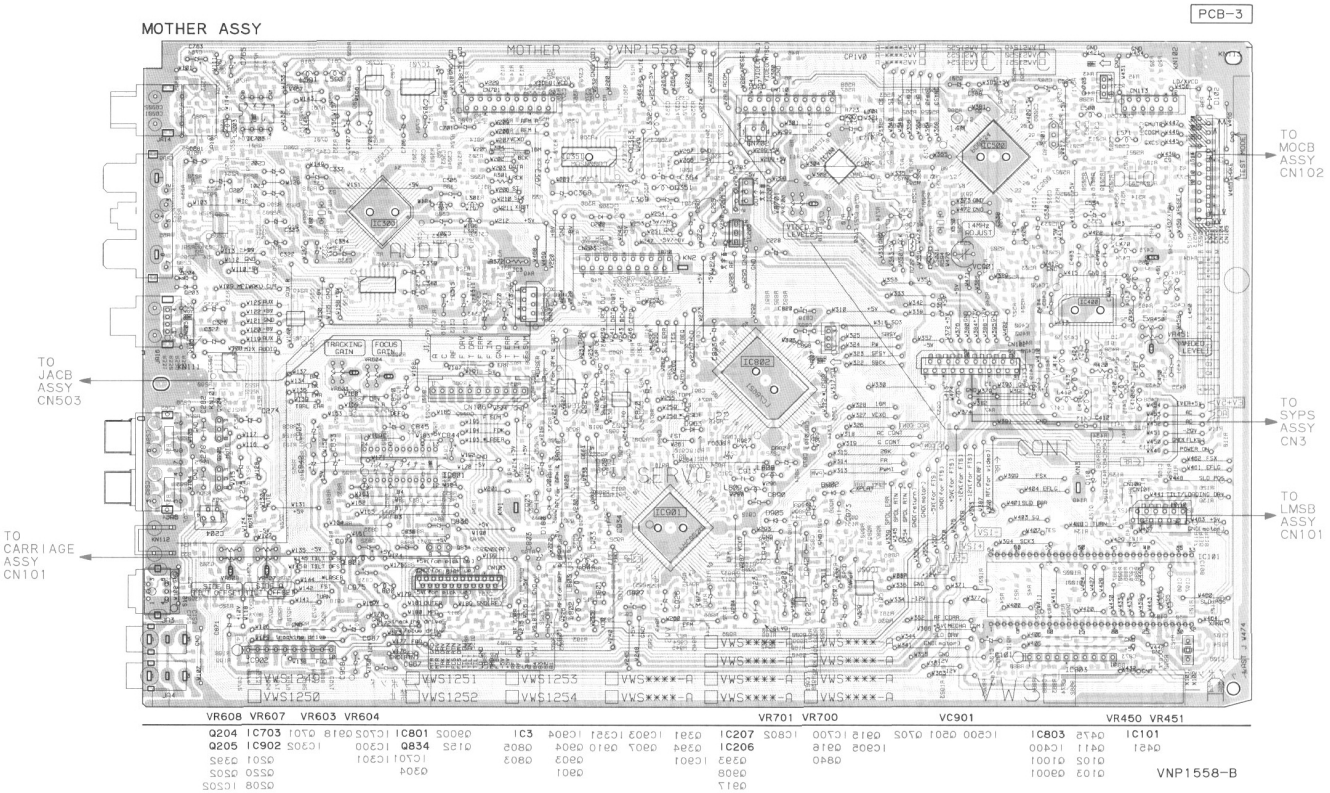
CAUTION — FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATINGS ONLY.




- This diagram is viewed from the mounted parts side.
- The parts mounted on this PCB include all necessary parts for several destinations.
  For further information for respective destinations, be sure to check with the schematic diagram.

### 3.3 MOTHER ASSEMBLY

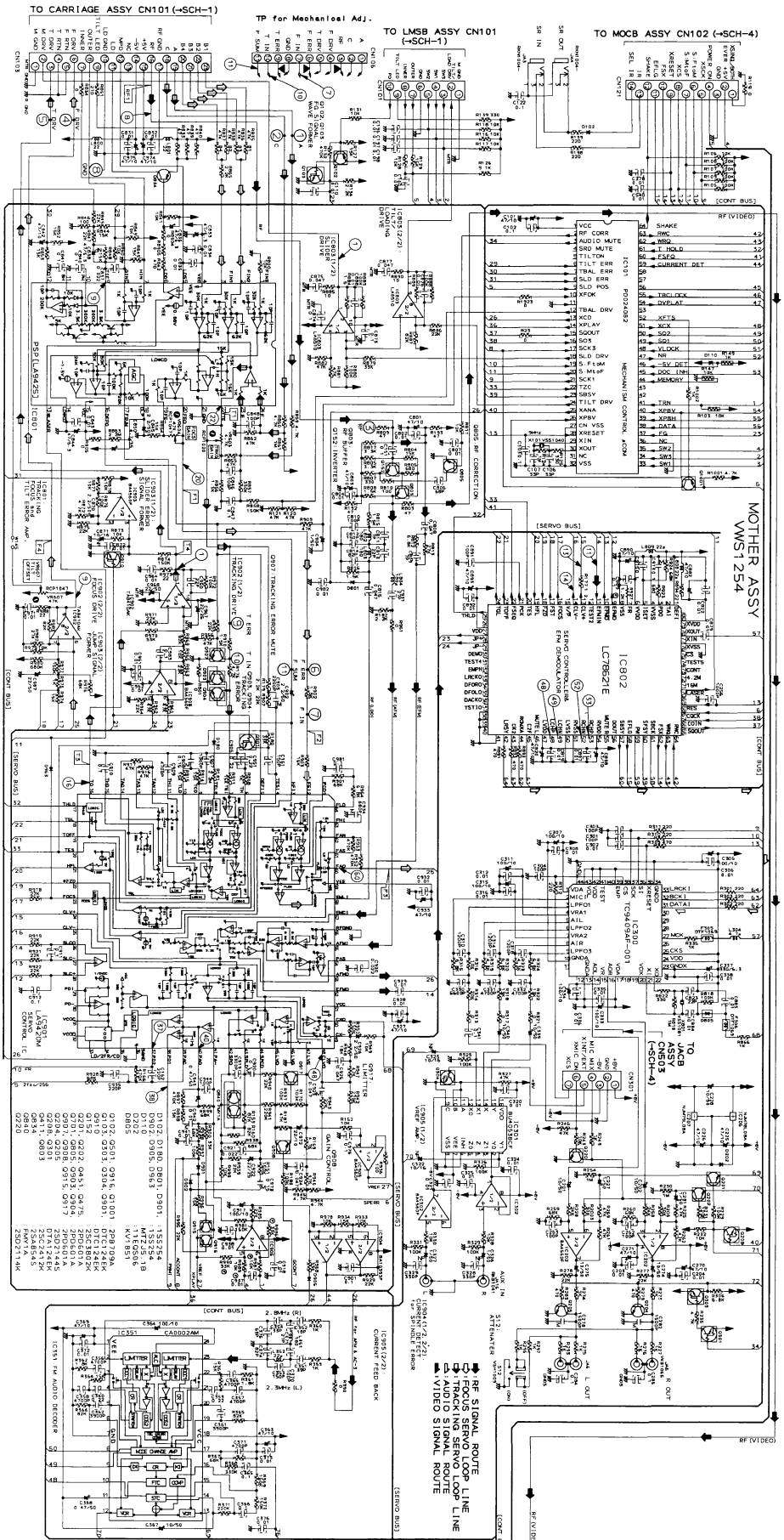
- This diagram is viewed from the mounted parts side.
- The parts mounted on this PCB include all necessary parts for several destinations.
  For further information for respective destinations, be sure to check with the schematic diagram.

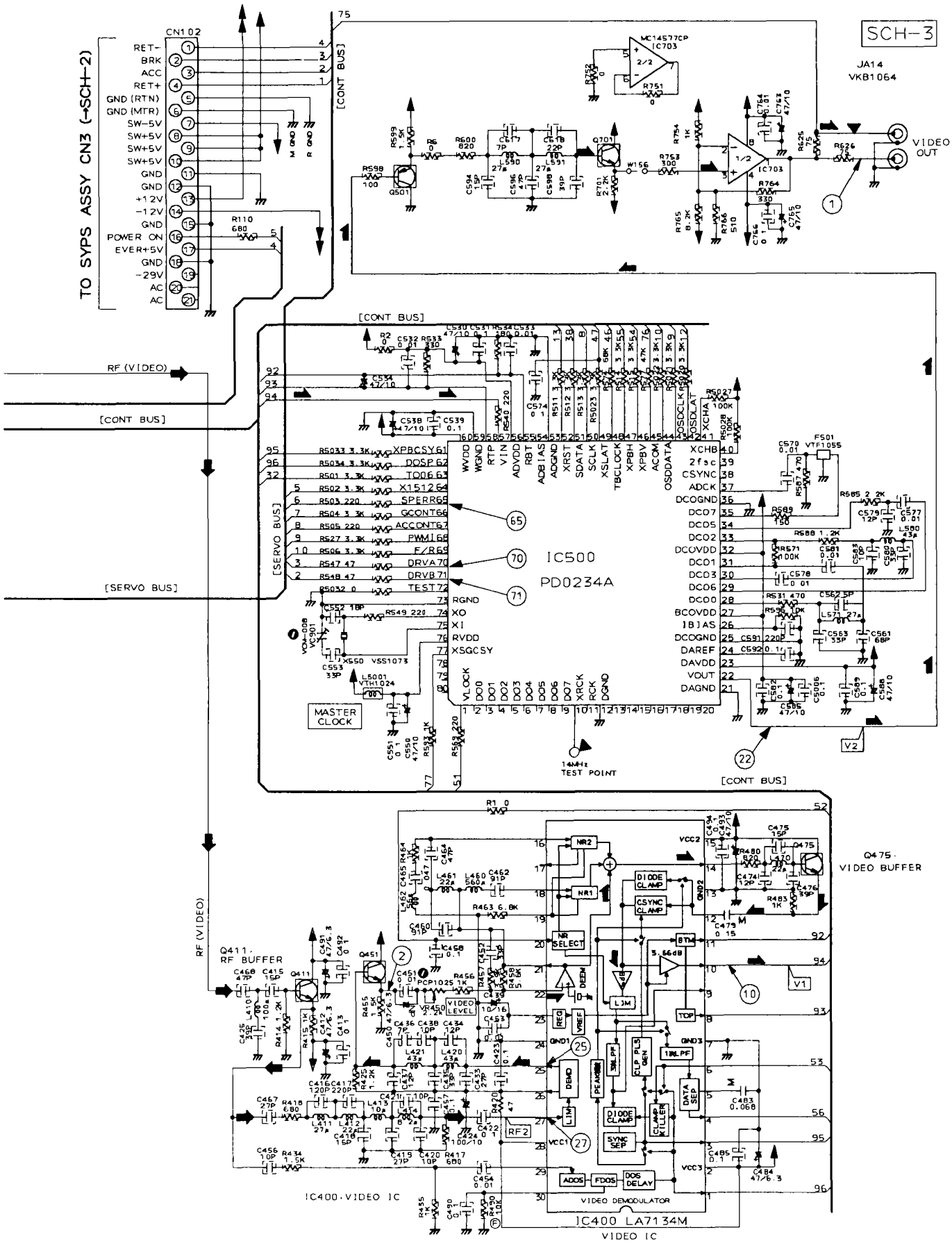


# SCH-3

MOTHER ASSY






SCH-3
JA14
VKB1064
TO SYPS ASSY CN3 (→SCH-2)
CN102
RET-
BRK
ACC
RET+
GND (RTN)
GND (MTR)
SW-5V
SW+5V
SW+5V
SW+5V
GND
GND
+12V
-12V
GND
POWER ON
EVER+5V
GND
-29V
AC
AC
[CONT BUS]
[SERVO BUS]
RF (VIDEO)
VIDEO OUT
IC703
MC14577CP
IC500
PD0234A
MASTER CLOCK
14MHz TEST POINT
F501
VTF1055
Q411.
RF BUFFER
Q475.
VIDEO BUFFER
IC400.VIDEO IC
IC400 LA7134M
VIDEO IC
VIDEO DEMODULATOR

## WAVEFORMS AND VOLTAGE

### MOTHER ASSEMBLY

Note: (No) in the table correspond to the pin number.

Measurement condition: In case when (D.audio) is written, at time when disc that has digital audio recording is played.

MOTHER ASSY

**IC801 (LA9425)**

T1(22) 5ms/div
200mVp-p
0V
DC mode

F1(20) 5ms/div
100mVp-p
0V
DC mode

(9) 10ms/div
0.2Vp-p
0V
DC mode

**IC802 (LC78621E)**

(11) 0.5μs/div
1.6Vp-p
0V
DC mode

50μs/div
(13) 5Vp-p
0V
(14)
0V
DC mode

0.2μs/div
(48),(53) 5Vp-p
0V
(49),(52) 5Vp-p
0V
DC mode

**IC803 (LA6510)**

(1) 2ms/div
1.8Vp-p
0V
DC mode

**IC901 (LA9420M)**

T3(16) 5ms/div
500mVp-p
0V
DC mode

F3(60) 5ms/div
1Vp-p
0V
DC mode

10μs/div
(38) 5Vp-p
0V
(37)
0V
DC mode

(40) 10ms/div
0.3Vp-p
0V
DC mode

(48) 50μs/div
1Vp-p
0V
DC mode

**IC902 (TA8410AK)**

T4(1) 5ms/div
2Vp-p
0V
DC mode

F4(9) 5ms/div
5Vp-p
0V
DC mode

**CN106**

(7)(F2) 5ms/div
200mVp-p
0V
DC mode

(10) 5ms/div
100mVp-p
0V
DC mode

(11) 5ms/div
0V
0.2Vp-p
DC mode

**CN103**

RF1(8) 2ms/div
600mVp-p
AC mode

**Q451 Emitter**

(2) 10μs/div
400mVp-p
AC mode

**JA14 VIDEO OUT**

(1) 10μs/div
1Vp-p
(75Ω termination) 0V
DC mode

**IC400 (LA7134M)**

V1(10) 10μs/div
1.6Vp-p
0V
DC mode

RF2(27) 2ms/div
400mVp-p
AC mode

(25) 10μs/div
1Vp-p
0V
DC mode

**IC500 (PD0234A)**

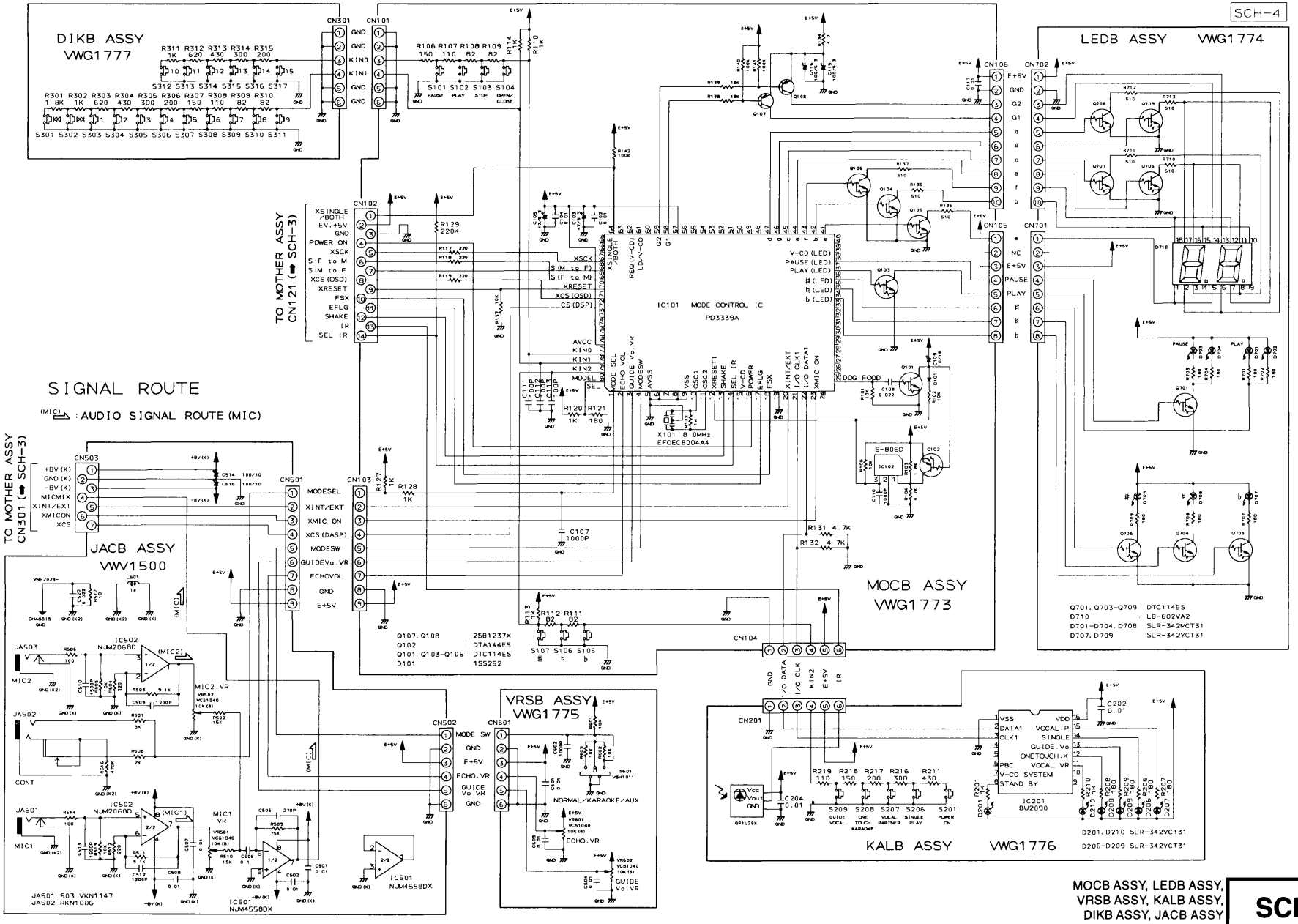
V2(22) 10μs/div
1Vp-p
DC mode

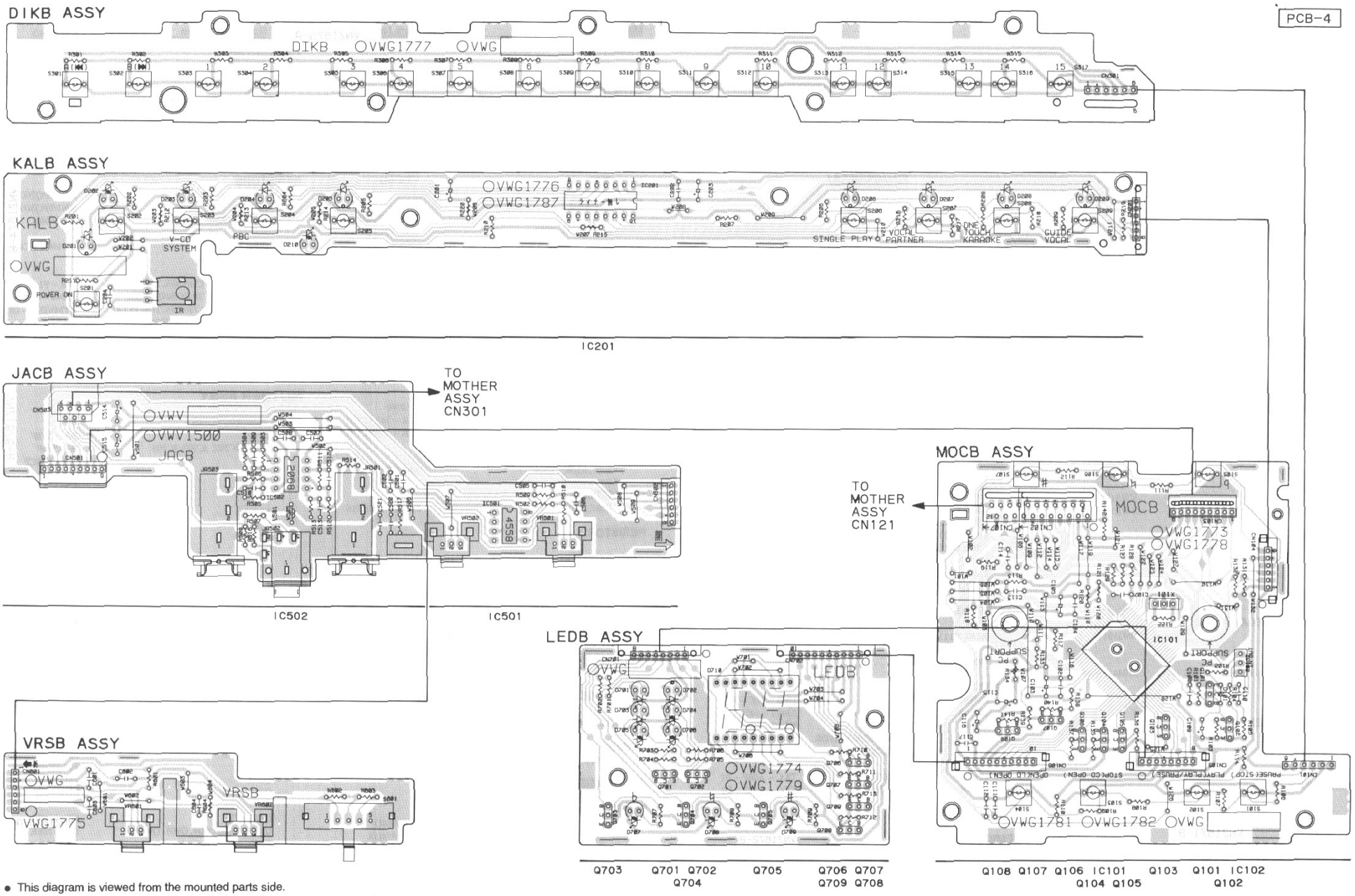
(65) 5ms/div
5Vp-p
0V
DC mode

10μs/div
(71) 5Vp-p
0V
(70)
0V
DC mode

MOTHER ASSY **SCH-3**

### 3.4 MOCB, LEDB, VRSB, KALB, DIKB AND JACB ASSEMBLIES






- This diagram is viewed from the mounted parts side.
- The parts mounted on this PCB include all necessary parts for several destinations.
  For further information for respective destinations, be sure to check with the schematic diagram.

VNP1562-B

# 4. PCB PARTS LIST

*NOTES:*

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

| | | | | |
|---|---|---|---|---|
| *560Ω* | → | *56 × 10¹* | → *561* ..... | *RD1/4PU[5][6][1]J* |
| *47kΩ* | → | *47 × 10³* | → *473* ..... | *RD1/4PU[4][7][3]J* |
| *0.5Ω* | → | *0R5* ..... | | *RN2H[0][R][5]K* |
| *1Ω* | → | *1R0* ..... | | *RS1P[1][R][0]K* |

*Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).*

| | | | | |
|---|---|---|---|---|
| *5.62kΩ* | → | *562 × 10¹* | → *5621* ..... | *RN1/4PC[5][6][2][1]F* |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **LIST OF ASSEMBLIES** | | | |
| NSP | | MACB ASSY | VWM1507 |
| NSP | | ├ LMSB ASSY | VWG1554 |
| NSP | | ├ PKSB ASSY | VWG1555 |
| NSP | | └ FG ASSY | VWG1556 |
| NSP | | FRPB ASSY | VWM1701 |
| | | ├ MOCB ASSY | VWG1773 |
| NSP | | ├ LEDB ASSY | VWG1774 |
| NSP | | ├ VRSB ASSY | VWG1775 |
| NSP | | ├ KALB ASSY | VWG1776 |
| NSP | | ├ DIKB ASSY | VWG1777 |
| | | └ JACB ASSY | VWV1500 |
| | | MOTHER ASSY | VWS1254 |
| ⚠ | | SYPS ASSY | VWR1233 |
| **MACB ASSY** | | | |
| **OTHERS** | | | |
| | | PCB(MACB) | VNP1479 |
| **LMSB ASSY** | | | |
| **SWITCHES AND RELAYS** | | | |
| | S101 – S103 | | DSG1017 |
| **OTHERS** | | | |
| | CN101 | 10P CONNECTOR | 52044 – 1045 |
| **PKSB ASSY** | | | |
| **SWITCHES AND RELAYS** | | | |
| | S104, S105 | | DSG1017 |
| **FG ASSY** | | | |
| **SEMICONDUCTORS** | | | |
| | D101 | | GP1S24 |
| **FRPB ASSY** | | | |
| **OTHERS** | | | |
| | | PCB(FRPB) | VNP1562 |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **MOCB ASSY** | | | |
| **SEMICONDUCTORS** | | | |
| | IC101 | | PD3339A |
| | IC102 | | S – 806D |
| | Q107, Q108 | | 2SB1237X |
| | Q102 | | DTA144ES |
| | Q101, Q103 – Q106 | | DTC114ES |
| | D101 | | 1SS252 |
| **SWITCHES AND RELAYS** | | | |
| | S101 – S107 | | ASG1034 |
| **CAPACITORS** | | | |
| | C109 | | CEAL100M16 |
| | C115, C116 | | CEAL101M6R3 |
| | C103, C105 | | CEAL470M6R3 |
| | C111 – C113 | | CKPUYB101K50 |
| | C107, C110 | | CKPUYB102K50 |
| | C108 | | CKPUYF223Z25 |
| | C102, C104, C117 | | CKPUYY103N16 |
| **RESISTORS** | | | |
| | R134 | | RFA1/6PU4R7J |
| | R110, R113, R114, R127 | | RN1/6PQ1001F |
| | Other Resistors | | RD1/4PU□□□J |
| **OTHERS** | | | |
| | CN101 | PIN HEADER | 1068 – 06C – PP |
| | CN102 | CONNECTOR 14P | 52492 – 1420 |
| | CN103 | CONNECTOR | BTMK09S – 1S |
| | X101 | CERAMIC RESONATOR | EFOEC8004A4 |
| | CN104 | CONNECTOR PLUG | TKC – A06P – C1 |
| | CN105 | CONNECTOR PLUG | TKC – A08P – B1 |
| | CN106 | CONNECTOR PLUG | TKC – A10P – B1 |
| **LEDB ASSY** | | | |
| **SEMICONDUCTORS** | | | |
| | Q701, Q703 – Q709 | | DTC114ES |
| | D710 | | LB – 602VA2 |
| | D701 – D704, D708 | | SLR – 342MCT31 |
| | D707, D709 | | SLR – 342YCT31 |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **RESISTORS** | | | |
| | All Resistors | | RD1/4PU□□□J |
| **OTHERS** | | | |
| | CN701 | CONNECTOR | TKC – A08X – B1 |
| | CN702 | CONNECTOR | TKC – A10X – B1 |

## VRSB ASSY

| | | | |
|---|---|---|---|
| **SWITCHES AND RELAYS** | | | |
| | S601 | | VSH1011 |
| **CAPACITORS** | | | |
| | C602 | | CKPUYB102K50 |
| | C601, C603, C604 | | CKPUYY103N16 |
| **RESISTORS** | | | |
| | VR601, VR602 (10kΩ • B) | | VCS1040 |
| | Other Resistors | | RD1/4PU□□□J |
| **OTHERS** | | | |
| | CN601 | CONNECTOR 6P | 06P – FJ |
| | | PCB HOLDER(FE) | VNE2026 |

## KALB ASSY

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC201 | | BU2090 |
| | D201, D210 | | SLR – 342VCT31 |
| | D206 – D209 | | SLR – 342YCT31 |
| **SWITCHES AND RELAYS** | | | |
| | S201, S206 – S209 | | ASG1034 |
| **CAPACITORS** | | | |
| | C202, C204 | | CKPUYY103N16 |
| **RESISTORS** | | | |
| | All Resistors | | RD1/4PU□□□J |
| **OTHERS** | | | |
| | | REMOTE RECEIVER UNIT | GP1U26X |
| | CN201 | CONNECTOR | TKC – A06X – B1 |

## DIKB ASSY

| | | | |
|---|---|---|---|
| **SWITCHES AND RELAYS** | | | |
| | S301 – S317 | | ASG1034 |
| **RESISTORS** | | | |
| | All Resistors | | RD1/4PU□□□J |
| **OTHERS** | | | |
| | CN301 | CONNECTOR 6P | 9133S – 06A |

## JACB ASSY

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC502 | | NJM2068D |
| | IC501 | | NJM4558DX |
| **COILS AND FILTERS** | | | |
| | L501 | | LFA010J |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **CAPACITORS** | | | |
| | C514, C515 | | CEJA101M10 |
| | C505 | | CKPUYB271K50 |
| | C520 | | CKPUYF223Z25 |
| | C509, C512 | | CKPUYX122M16 |
| | C510, C513 | | CKPUYX152M16 |
| | C501, C502, C507, C508 | | CKPUYY103N16 |
| | C506 | | CQMA104J50 |
| **RESISTORS** | | | |
| | R508 | | RN1/6PQ2001F |
| | R507 | | RN1/6PQ3001F |
| | VR501, VR502 (10kΩ • B) | | VCS1040 |
| | Other Resistors | | RD1/4PU□□□J |
| **OTHERS** | | | |
| | CN502 | CONNECTOR 6P | 06R – FJ |
| | CN503 | 7P CONNECTOR | 52044 – 0745 |
| | CN501 | CONNECTOR PLUG | BTMK09P – 1R |
| | JA502 | HEADPHONE JACK | RKN1006 |
| | JA501, JA503 | MIC JACK | VKN1147 |
| | | SNAP PLATE | VNE1102 |
| | | JACK HOLDER | VNE2054 |

## MOTHER ASSY

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC904 | | BA10393F |
| | IC202, IC302, IC903, IC905 | | BA4560F |
| | IC301 | | BU4053BCF |
| | IC351 | | CA0002AM |
| | IC803 | | LA6510 |
| | IC400 | | LA7134M |
| | IC901 | | LA9420M |
| | IC801 | | LA9425 |
| | IC802 | | LC78621E |
| | IC703 | | MC14577CP |
| | IC206 | | NJM78L08A |
| | IC207 | | NJM79L08A |
| | IC500 | | PD0234A |
| | IC101 | | PD0240B2 |
| | IC902 | | TA8410AK |
| | IC300 | | TC9409AF – 001 |
| | Q1001, Q102, Q501, Q916 | | 2PB709A |
| | Q201, Q202, Q451, Q475, Q701 | | 2PD601A |
| | Q805, Q903, Q904, Q907, Q908 | | 2PD601A |
| | Q915, Q917 | | 2PD601A |
| | Q834 | | 2SA854S |
| | Q411, Q803 | | 2SC2412K |
| | Q152 | | 2SC3802K |
| | Q220 | | 2SD2114K |
| | Q204, Q205 | | 2SD2144S |
| | Q208, Q301 | | DTA124EK |
| | Q103, Q303, Q304, Q901, Q910 | | DTC124EK |
| | Q840 | | FMY1A |
| | D202 | | 11EQS06 |
| | D102, D180, D801, D901, D902 | | 1SS254 |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | D905, D963 | | 1SS254 |
| | D805 | | KV1851 |
| | D110 | | MTZJ5.1B |
| **SWITCHES AND RELAYS** | | | |
| | S12 | SLIDE SWITCH | VSH1009 |
| **COILS AND FILTERS** | | | |
| | F305, F306 | CHIP BEAD | DTF1069 |
| | L413 | | LAU100J |
| | L410 | | LAU101J |
| | L351, L802 – L804 | | LAU181J |
| | L352, L412, L461, L470 | | LAU220J |
| | L800, L801, L808, L809 | | LAU220J |
| | L411, L571, L590, L591 | | LAU270J |
| | L420, L421, L580 | | LAU430J |
| | L304 | | LAU4R7J |
| | L462 | | LAU560J |
| | L414 | | LAU8R2J |
| | L460 | | LFA561J |
| | F501 | 14.3MHz FILTER | VTF1055 |
| | L5001 | FERRITE BEAD | VTH1024 |
| **CAPACITORS** | | | |
| | C562 | | CCSQCH050C50 |
| | C436, C617, C809, C811 | | CCSQCH070D50 |
| | C420, C421, C438, C456, C583 | | CCSQCH100D50 |
| | C262, C263, C301, C303, C304 | | CCSQCH101J50 |
| | C370, C810, C846, C848, C891 | | CCSQCH101J50 |
| | C944 | | CCSQCH101J50 |
| | C434, C437, C474, C579 | | CCSQCH120J50 |
| | C416 | | CCSQCH121J50 |
| | C415, C418, C475, C594 | | CCSQCH150J50 |
| | C161, C353, C812 | | CCSQCH151J50 |
| | C352, C552 | | CCSQCH180J50 |
| | C618, C813, C823, C950 | | CCSQCH220J50 |
| | C162, C417, C591, C935 | | CCSQCH221J50 |
| | C371, C419, C433, C467, C931 | | CCSQCH270J50 |
| | C106, C107, C354, C435, C452 | | CCSQCH330J50 |
| | C553, C563, C580 | | CCSQCH330J50 |
| | C328, C329 | | CCSQCH331J50 |
| | C351, C425, C476, C598 | | CCSQCH390J50 |
| | C464, C468, C596 | | CCSQCH470J50 |
| | C375, C561, C806 | | CCSQCH680J50 |
| | C374, C814 | | CCSQCH820J50 |
| | C460, C462 | | CCSQCH910J50 |
| | C439 | | CEAL100M16 |
| | C412, C484, C491, C833, C836 | | CEAL470M6R3 |
| | C844 | | CEAL470M6R3 |
| | C838 | | CEALNP470M6R3 |
| | C326, C327 | | CEANP010M50 |
| | C322, C323 | | CEANP100M16 |
| | C972 | | CEANP220M10 |
| | C450 | | CEANP470M6R3 |
| | C227, C281, C904 | | CEAS010M50 |
| | C201, C202, C228, C274, C275 | | CEAS100M50 |
| | C339, C340, C367 | | CEAS100M50 |
| | C305, C307, C311, C315 | | CEAS101M10 |
| | C333, C334, C364, C424, C917 | | CEAS101M10 |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | C922, C967 | | CEAS220M25 |
| | C845, C870, C902, C926 | | CEAS2R2M50 |
| | C337 | | CEAS331M6R3 |
| | C101, C225, C226, C363 | | CEAS470M10 |
| | C369, C493, C530, C534, C538 | | CEAS470M10 |
| | C550, C585, C588, C763, C765 | | CEAS470M10 |
| | C801, C803, C820, C842, C882 | | CEAS470M10 |
| | C890, C893, C898, C927, C933 | | CEAS470M10 |
| | C974, C975 | | CEAS470M10 |
| | C368, C943 | | CEASR47M50 |
| | C968, C987 | | CEHAQ220M50 |
| | C270, C271 | | CEJA470M10 |
| | C850 | | CEJA4R7M35 |
| | C256, C490, C907 | | CKSQYB102K50 |
| | C203, C204, C308, C320, C321 | | CKSQYB103K50 |
| | C324, C325 | | CKSQYB103K50 |
| | C335, C336, C338, C879 | | CKSQYB103K50 |
| | C341, C915, C981 | | CKSQYB104K25 |
| | C310, C314, C318 | | CKSQYB122K50 |
| | C919 | | CKSQYB332K50 |
| | C361, C362 | | CKSQYB392K50 |
| | C331, C332, C355 – C358, C377 | | CKSQYB472K50 |
| | C909 | | CKSQYB472K50 |
| | C330 | | CKSQYB562K50 |
| | C110, C122, C160, C196 – C198 | | CKSQYF103Z50 |
| | C302, C306, C312, C316 | | CKSQYF103Z50 |
| | C372, C373, C376, C378, C451 | | CKSQYF103Z50 |
| | C454, C532, C533, C540, C570 | | CKSQYF103Z50 |
| | C577, C578, C581, C802, C804 | | CKSQYF103Z50 |
| | C807, C819, C822, C831, C832 | | CKSQYF103Z50 |
| | C834, C835, C843, C872, C876 | | CKSQYF103Z50 |
| | C883, C884, C888, C889, C892 | | CKSQYF103Z50 |
| | C897, C918, C928, C929, C932 | | CKSQYF103Z50 |
| | C937, C938, C941, C961, C962 | | CKSQYF103Z50 |
| | C964, C971, C982 | | CKSQYF103Z50 |
| | C102, C103, C151, C284, C285 | | CKSQYF104Z25 |
| | C365, C366, C413, C422, C423 | | CKSQYF104Z25 |
| | C453, C457, C458, C485, C492 | | CKSQYF104Z25 |
| | C494, C5006, C531, C539, C551 | | CKSQYF104Z25 |
| | C574, C582, C589, C592, C764 | | CKSQYF104Z25 |
| | C766, C840, C841, C847 | | CKSQYF104Z25 |
| | C873, C874, C901, C910 – C912 | | CKSQYF104Z25 |
| | C976, C983 | | CKSQYF104Z25 |
| | C837, C921, C930 | | CKSQYF223Z50 |
| | C359, C360, C905, C951 | | CKSQYF224Z25 |
| | C465, C808, C815, C875, C877 | | CKSQYF473Z25 |
| | C924, C925 | | CKSQYF473Z25 |
| | C942 | | CQMA103J50 |
| | C913, C920 | | CQMA104J50 |
| | C278, C282 | | CQMA152J50 |
| | C479, C908, C973 | | CQMA154J50 |
| | C903 | | CQMA222J50 |
| | C923 | | CQMA473J50 |
| | C934 | | CQMA681J50 |
| | C483 | | CQMA683J50 |
| | C871 | (10μF/16V) | VCH1152 |
| | VC901 | (20pF) | VCM – 008 |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **RESISTORS** | | | |
| | R927 | | RD1/4PU122J |
| | R301 | | RD1/4PU221J |
| | R420 | | RD1/4PU470J |
| | R490, R987, R989 | | RN1/10SE103D |
| | R880, R883 | | RN1/10SE104D |
| | R879, R986, R990 | | RN1/10SE333D |
| | R881, R882 | | RN1/10SE473D |
| | VR450 | (2.2kΩ, 0.1W) | PCP1025 |
| | VR603 | (4.7kΩ, 0.1W) | RCP1020 |
| | VR604, VR607 | (47kΩ, 0.1W) | RCP1047 |
| | Other Resistors | | RS1/10S□□□J |
| **OTHERS** | | | |
| | CN301 | 7P CONNECTOR | 52045 – 0745 |
| | CN101 | 10P CONNECTOR | 52045 – 1045 |
| | CN121 | 14P CONNECTOR | 52045 – 1445 |
| | CN102 | 21P CONNECTOR | 52045 – 2145 |
| | CN103 | 23P CONNECTOR | 52233 – 2310 |
| | CN106 | 11P CONNECTOR | B11P – SHF – 1AA |
| | JA16 | JACK | RKB1041 |
| | JA3, JA4 | JACK | RKN1004 |
| | | PCB BINDER | VEF1040 |
| | JA14 | JACK | VKB1064 |
| | JA6 | JACK | VKB1065 |
| | | SCREW PLATE | VNE1948 |
| | KN101, KN102 | EARTH METAL FITTING | VNF1084 |
| | X101 | CERAMIC RESONATOR (9.00MHz) | VSS1040 |
| | X550 | CRYSTAL RESONATOR (14.31818MHz) | VSS1073 |
| | X801 | CRYSTAL RESONATOR (16MHz) | VSS1081 |

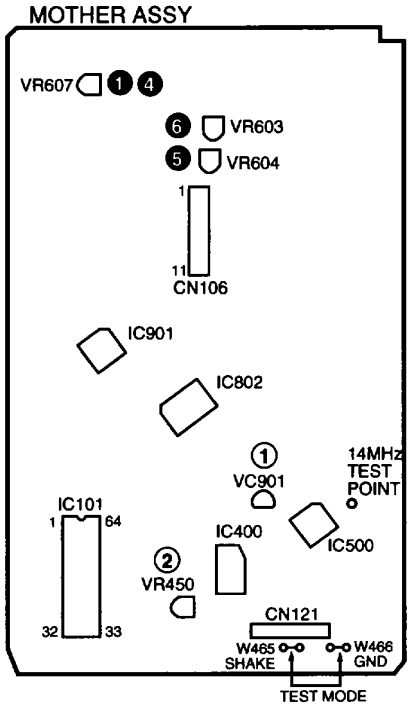
## SYPS ASSY

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC20 | | HA17431P |
| ⚠ | IC2 | | ICP – N15 |
| ⚠ | IC1 | | ICP – N20 |
| | IC21 | | NJM4558D |
| | Q27, Q30, Q32 | | SA933S |
| | Q20, Q22 | | 2SB1566 |
| ⚠ | Q24 | | 2SB891F |
| | Q25, Q29, Q31 | | 2SC1740S |
| ⚠ | Q2 , Q3 | | 2SC3377 |
| ⚠ | Q26 | | 2SD2007 |
| | Q21, Q23 | | 2SD2395 |
| ⚠ | Q1 | | 2SK1460 |
| | D25 – D27, D30, D31 | | AG01Z – VO |
| ⚠ | D1 | | D2SB60F4004 |
| ⚠ | D2 | | EG01C |
| ⚠ | D5 | | MTZJ3.6A |
| | D29 | | MTZJ8.2B |
| ⚠ | D20 | | PS2561L1 – 1VM |
| ⚠ | D3 | | RD18FB2 |
| | D40 | | RD30FB3 |
| | D23 | | RK36 |
| | D21, D22, D24 | | S2LA20 |
| ⚠ | D7 | | 1SS270A |
| **RESISTORS** | | | |
| ⚠ | R22 – R25 | (47Ω, 1/6W) | VCN1033 |
| ⚠ | R27 | (0.47Ω, 1/2W) | VCN1046 |
| ⚠ | R29 | (68Ω, 1/4W) | VCN1048 |
| ⚠ | R31 | (8.2Ω, 1/4W) | VCN1050 |
| **OTHERS** | | | |
| ⚠ | F1 | FUSE(T2A, 250V) | AEK1057 |
| ⚠ | F2 | FUSE | VEK1033 |
| ⚠ | F3, F4 | FUSE | VEK1034 |
| ⚠ | F5, F6 | FUSE | VEK1035 |

# 5. ADJUSTMENTS (調整方法)

## 5.1 ADJUSTMENT ITEMS AND LOCATION (調整項目と調整位置)

### ■Adjustment Points (PCB Part)




### ■Adjustment Items

[Mechanical Part]

❶ Tilt Offset Adjustment
(チルトオフセット調整)

❷ Tangential Direction Angle Adjustment
(タンジェンシャル傾き調整)

❸ Spindle Motor Centering Adjustment
(スピンドル芯出し調整)

❹ Crosstalk Check and Fine Tilt Offset Adjustment for Side A
(クロストーク確認及び，チルトオフセット微調)

❺ Focus Servo Loop Gain Adjustment
(フォーカスサーボループゲイン調整)

❻ Tracking Servo Loop Gain Adjustment
(トラッキングサーボループゲイン調整)

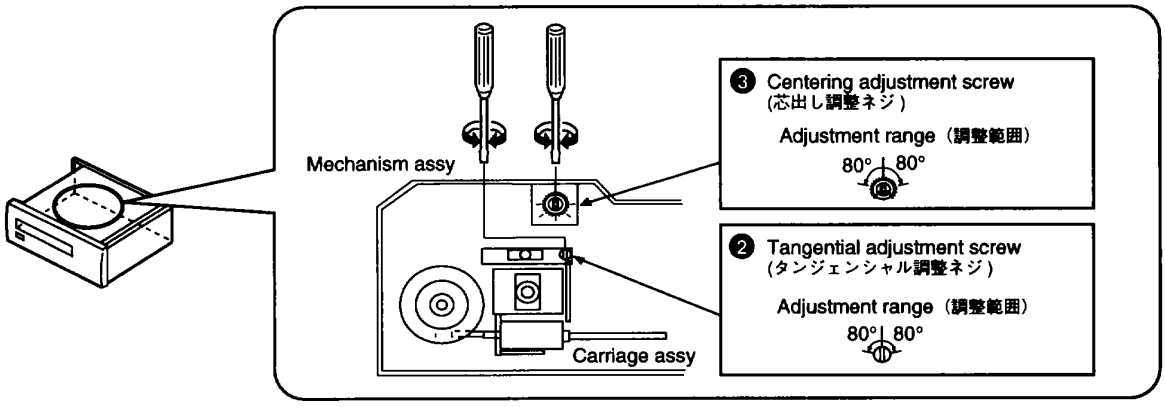
❼ RF Level Check
(RFレベル確認)

[Electrical Part]

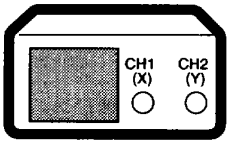
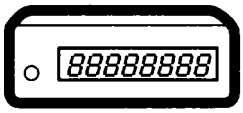
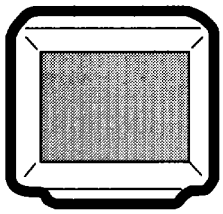
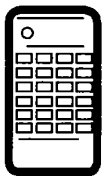
① Master Clock Adjustment
(マスタークロック調整)

② Output Video Level Adjustment
(出力ビデオレベル調整)

### ■Adjustment Points (Mechanism Part)

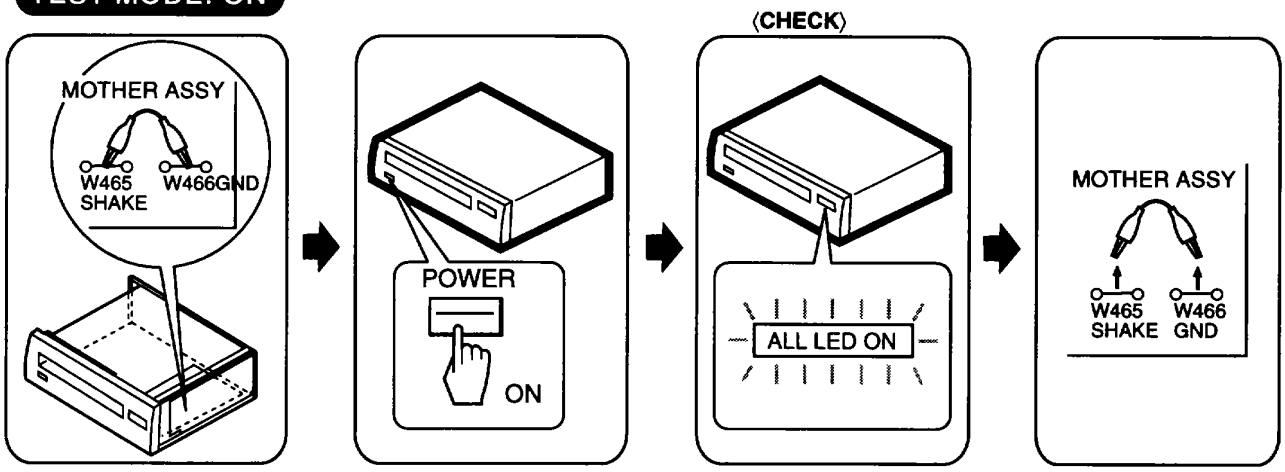


## 5.2 JIGS AND MEASURING INSTRUMENTS (調整に必要な治工具類)

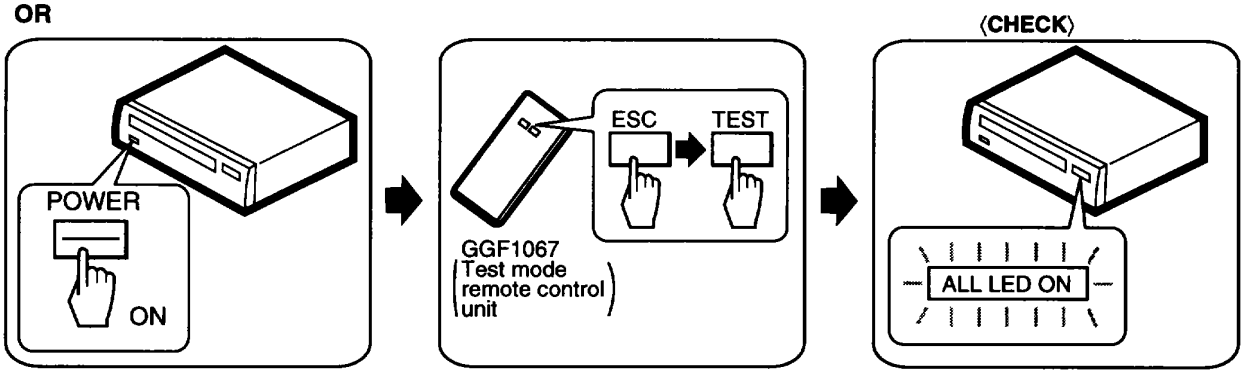
| | | | |
|---|---|---|---|
| CD test disc (YEDS-7) | LD test disc (GGV1012) | ⊖ Screwdriver (medium) | ⊖ Screwdriver (small) |
| ⊖ Precise screwdriver | ⊕ Screwdriver (large) | ⊕ Screwdriver (medium) |   Dual-trace oscilloscope (with delay) Frequency band ≧ 40MHz |
|   Frequency counter Display digit ≧ 8-digit |  TV monitor |  Test mode remote control unit (GGF1067) | |

## 5.3 TEST MODE（テストモード）

### TEST MODE: ON

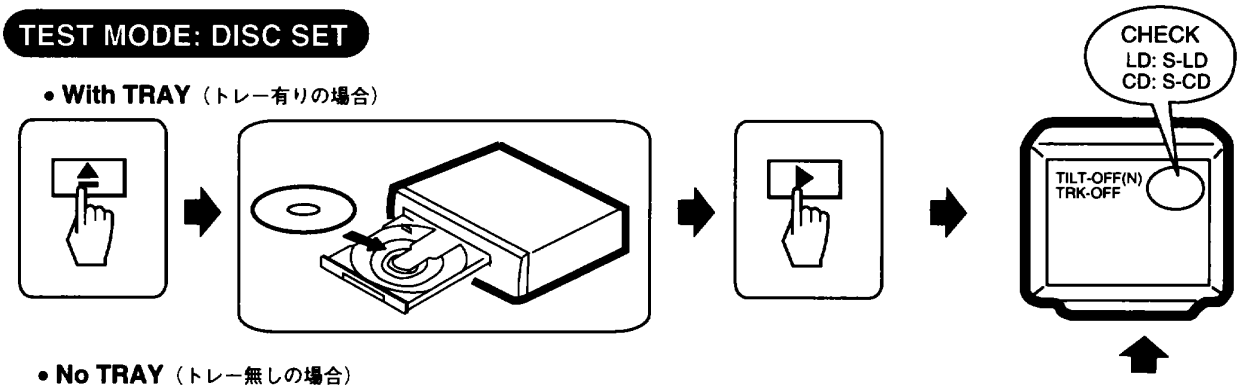



OR

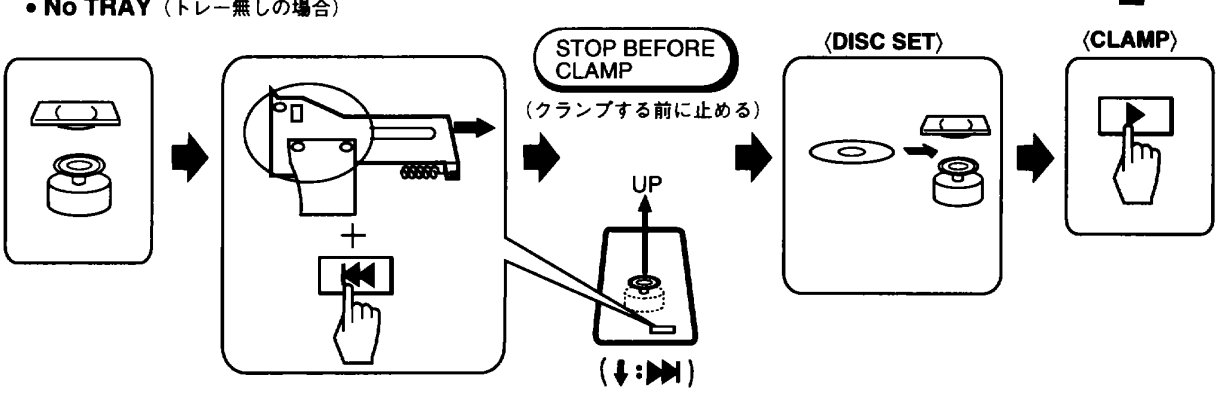



### TEST MODE: DISC SET

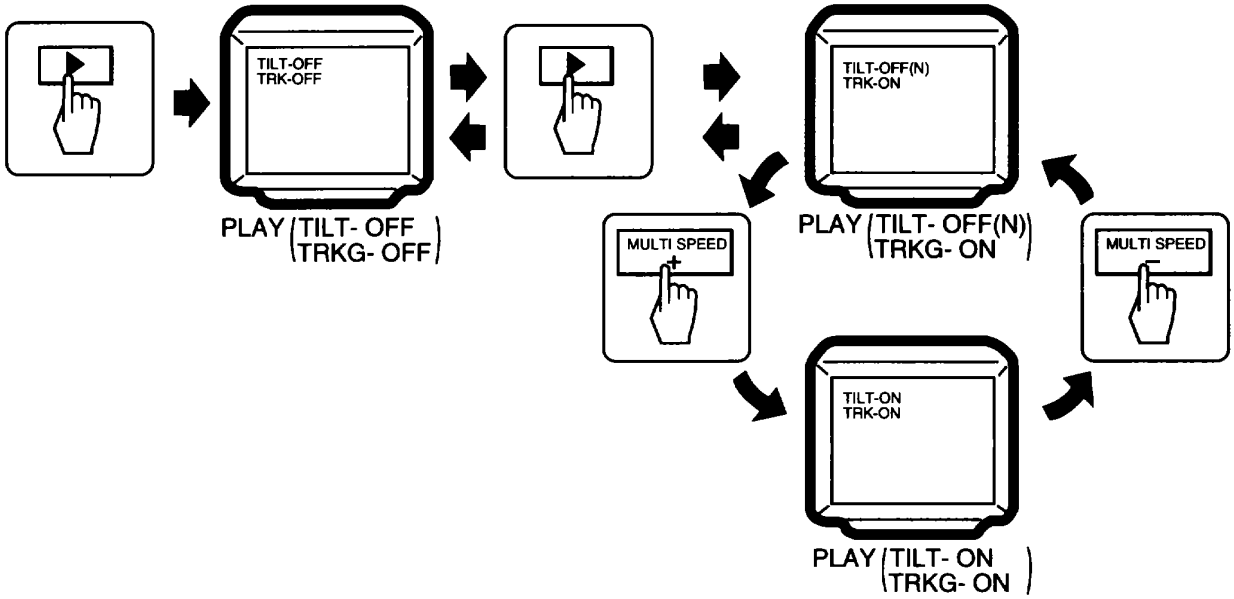
• **With TRAY**（トレー有りの場合）



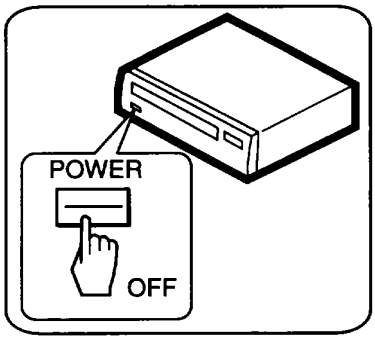

• **No TRAY**（トレー無しの場合）



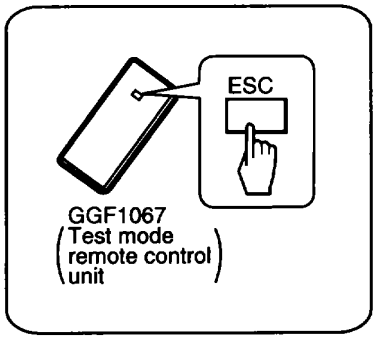
## TEST MODE: PLAY




## TEST MODE: OFF




OR



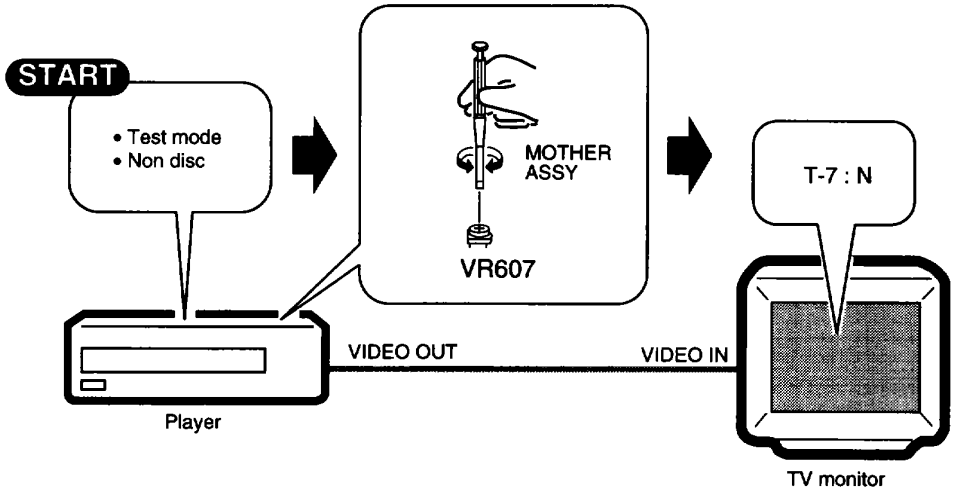
## 5.4 NECESSARY ADJUSTMENT POINTS（必要な調整項目）

| When（このような時） | Adjustment Points | |
|---|---|---|
| **■ EXCHANGE MECHANISM ASSY PARTS**<br>（メカASSY部品を交換したとき） | | |
| Exchange pickup<br>(ピックアップを交換したとき) | Mechanical point | ❶,❷,❸,❹,❺,❻,❼ |
| | Electric point | ——— |
| Exchange spindle motor<br>(スピンドルモータを交換したとき) | Mechanical point | ❸ |
| | Electric point | ——— |
| **■ EXCHANGE PCB ASSY**<br>（PCB ASSYを交換したとき） | | |
| Exchange board<br>MOTHER ASSY<br>(マザーボードを交換したとき) | Mechanical point | ❶,❹,❺,❻ |
| | Electric point | ——— |

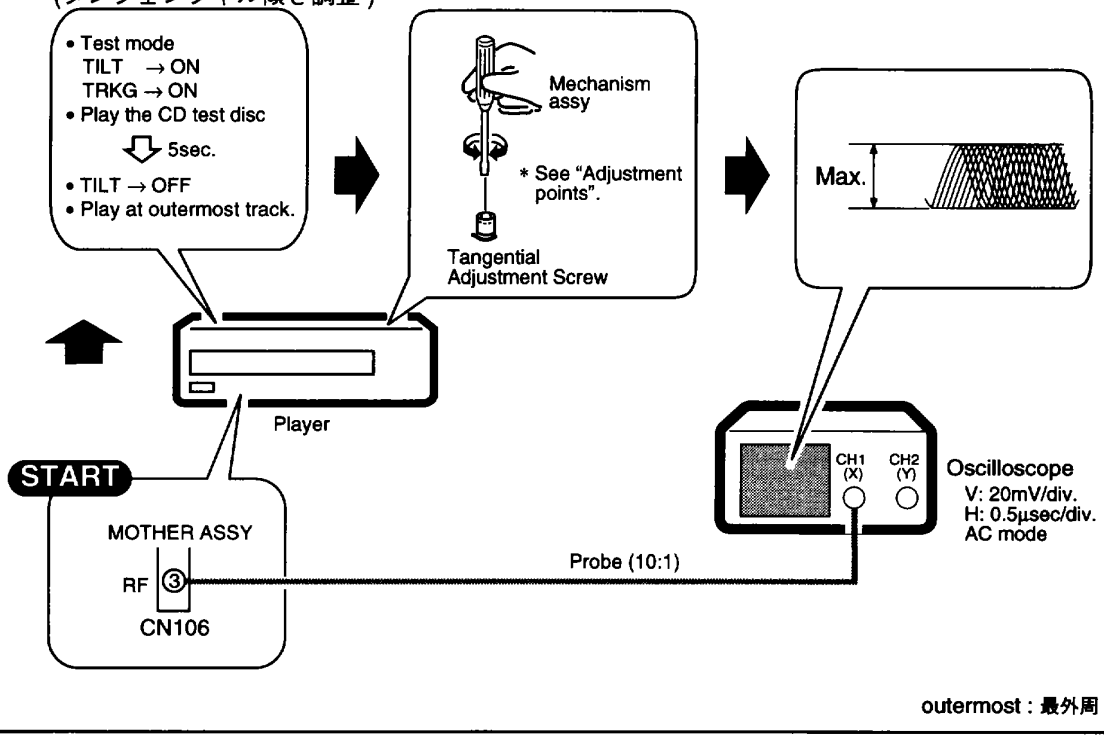
Note : ① and ② are adjusted already. (①,②は調整済)

## 5.5 MECHANICAL ADJUSTMENT (機構系の調整)

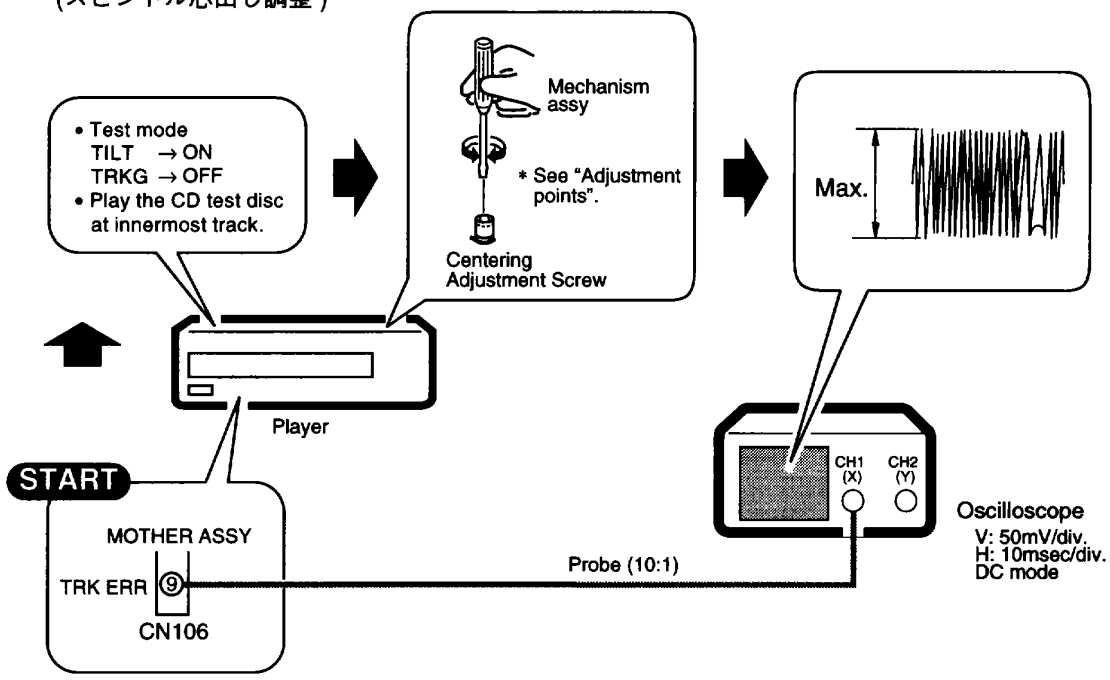
### ❶ Tilt Offset Adjustment
(チルトオフセット調整)




### ❷ Tangential Direction Angle Adjustment
(タンジェンシャル傾き調整)

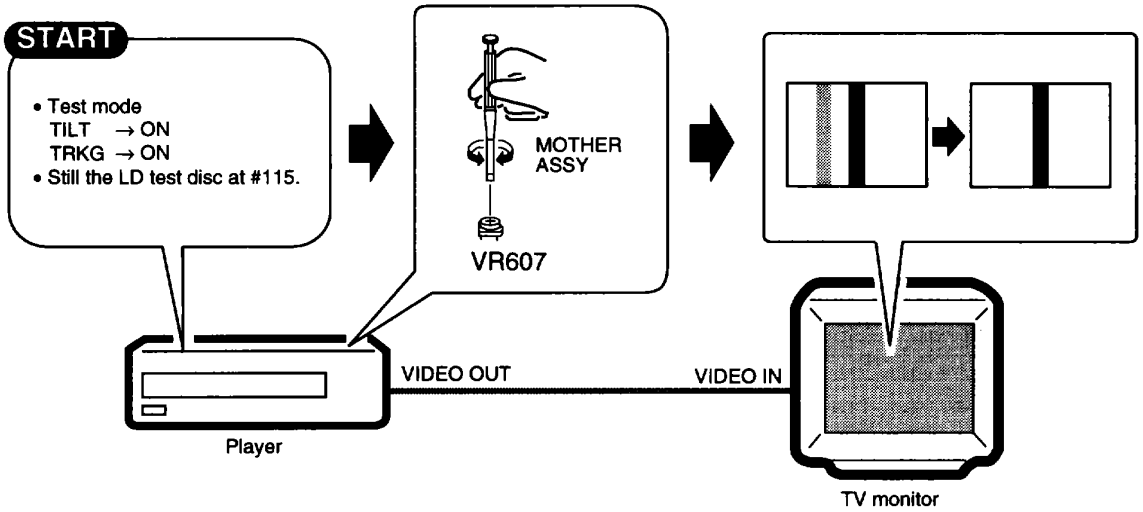


## 3 Spindle Motor Centering Adjustment
(スピンドル芯出し調整)

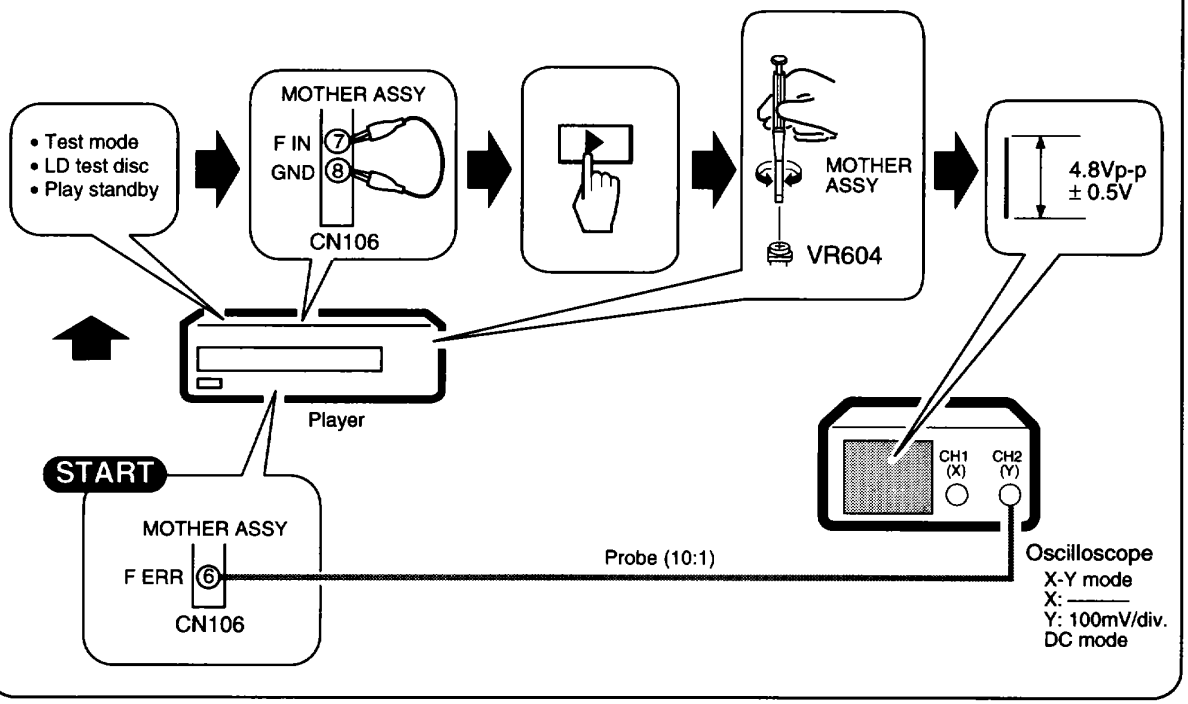



innermost : 最内周

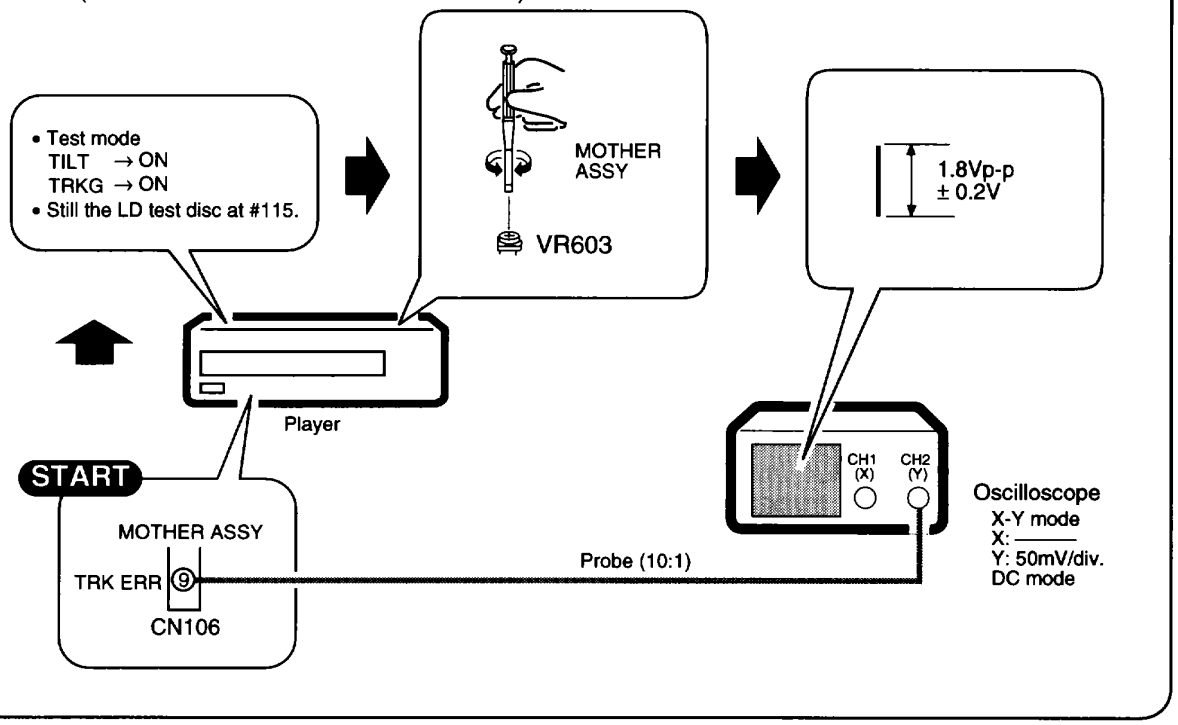
## 4 Crosstalk Check and Fine Tilt Offset Adjustment
(クロストーク確認及び，チルトオフセット微調)



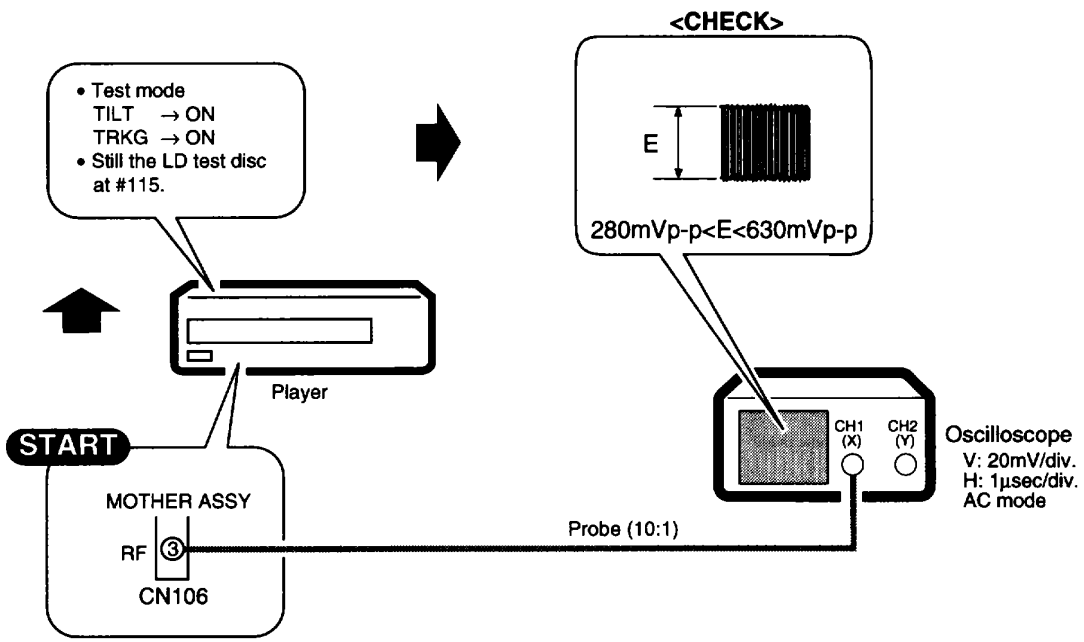
## 5 Focus Servo Loop Gain Adjustment
(フォーカスサーボループゲイン調整)




## 6 Tracking Servo Loop Gain Adjustment
(トラッキングサーボループゲイン調整)

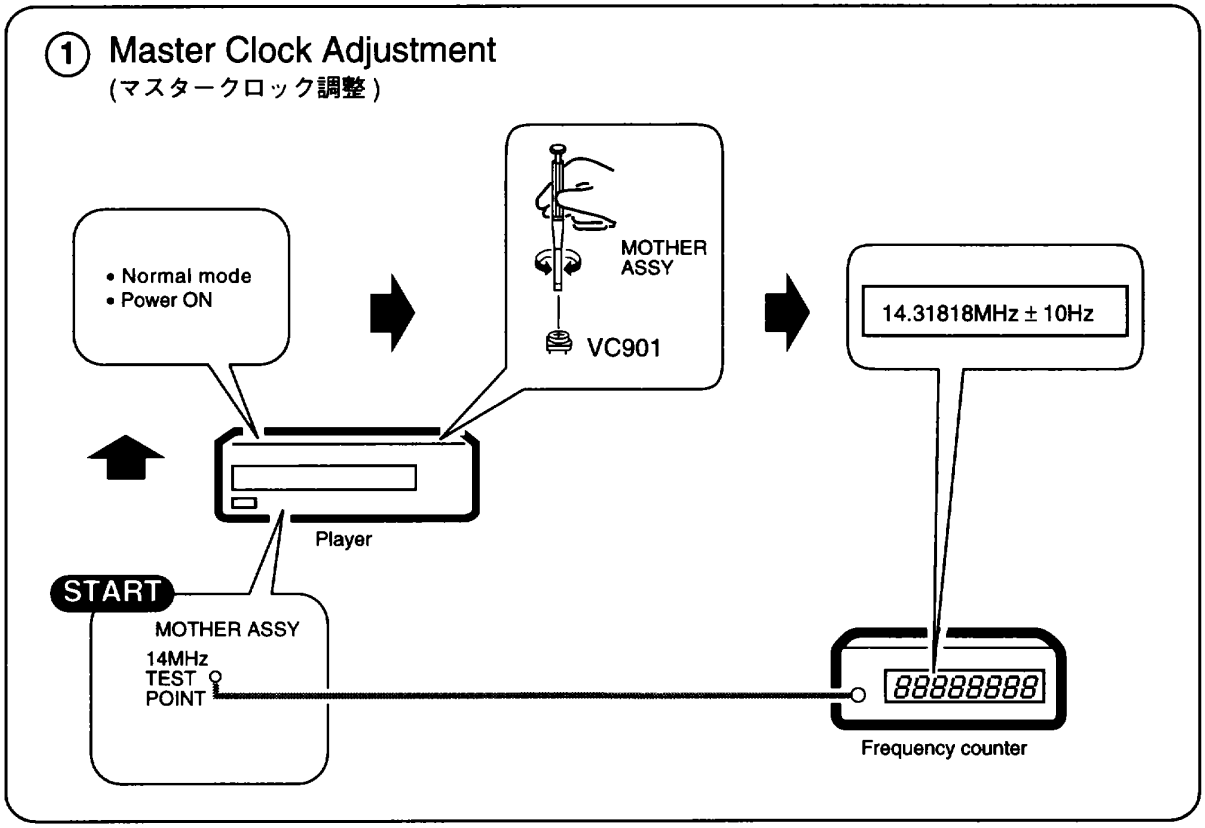


## 7 RF Level Check
(RFレベル確認)

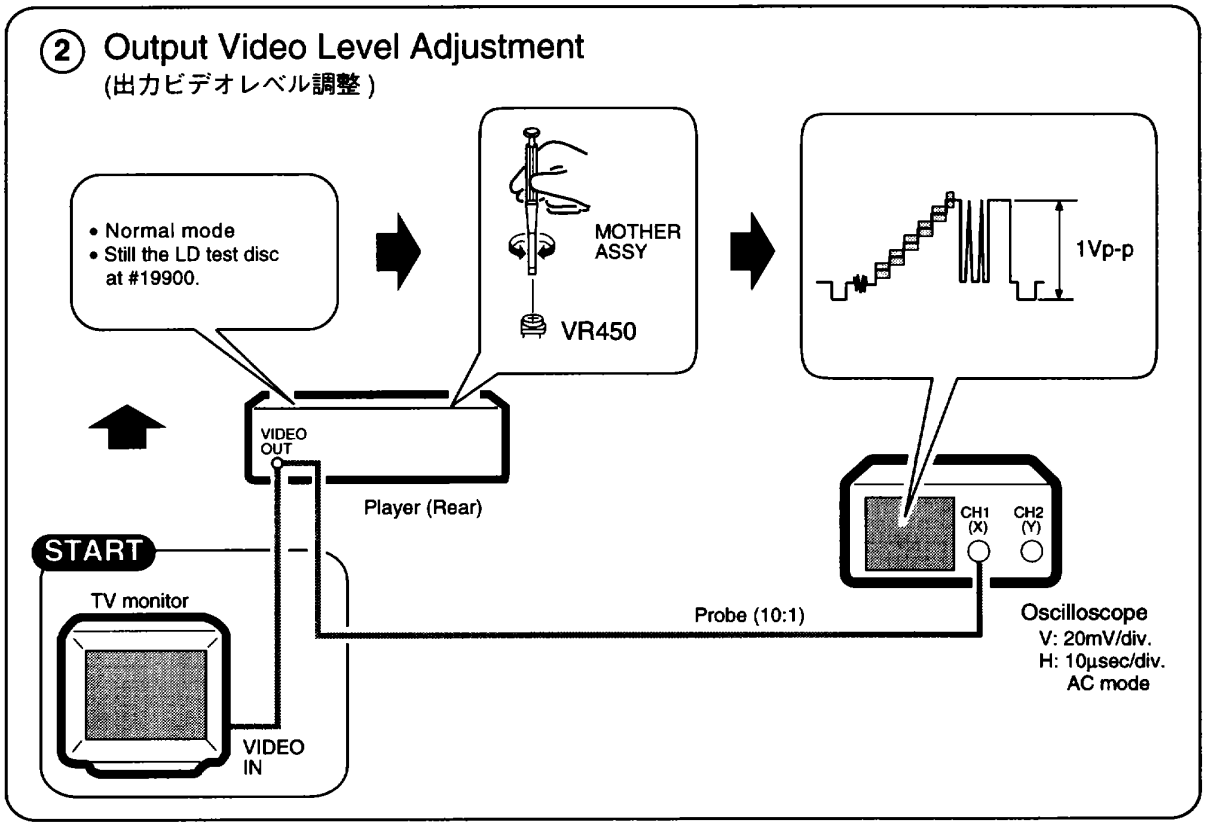


## 5.6 ELECTRICAL ADJUSTMENT (電気系の調整)

### ① Master Clock Adjustment
(マスタークロック調整)

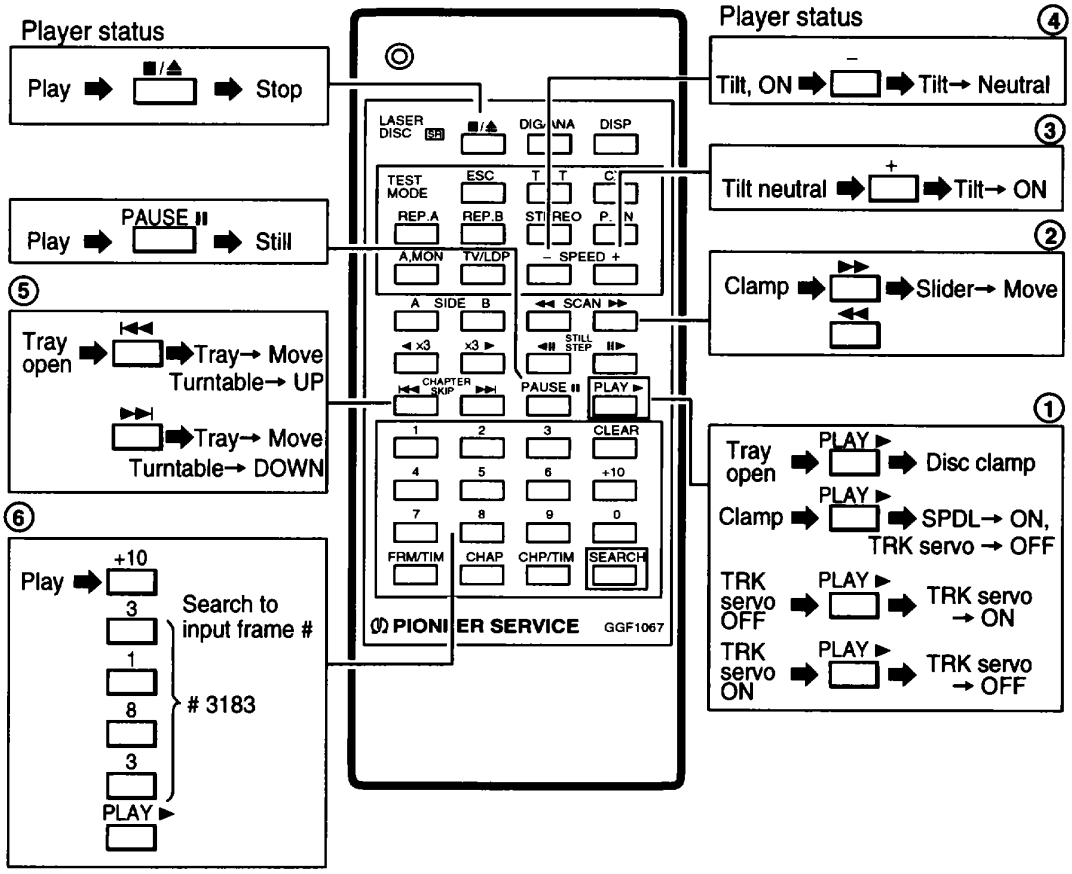



### ② Output Video Level Adjustment
(出力ビデオレベル調整)

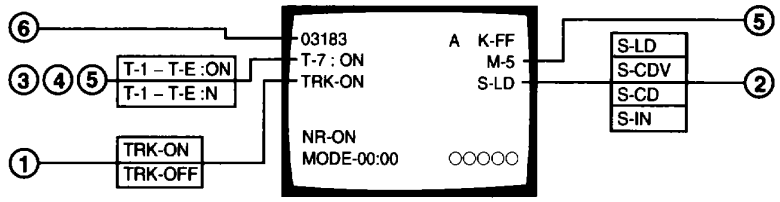


## 5.7 OPERATIONS IN THE TEST MODE (テストモード時のサービス用リモコン操作方法)

### ■ Test Mode Remote Control Unit (GGF1067)




### ■ TV Monitor Display



# 6. SELF-DIAGNOSTIC FUNCTIONS

The self-diagnostic functions automatically display an error code on the TV screen and front panel fluorescent display section when there is an error. The customer checks the error code and conveys it to the service personnel to make repairs more efficient.
After an error occurs, even if the error code goes off, you can display the error code again by holding down the CLEAR key for 5 seconds (except a loading error L ∗ display). At that time, partial error is displayed with the mechanism switch information. However, if the power cord is unplugged, the error code information is lost.

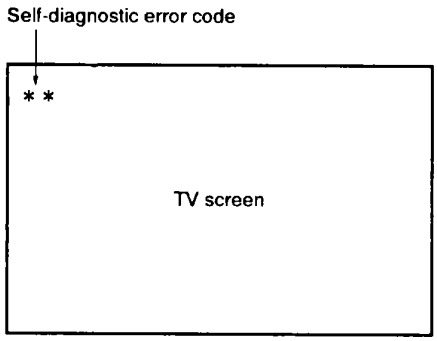



Fig. 1 TV screen display

This table explains the information for analyzing the cause when an error occurs with the CLD player.

| Self-diagnostic error code | Contents | Conditions | Probable cause |
|---|---|---|---|
| H0 | Spindle overcurrent detection error. | In the play state, overcurrent was detected in the spindle motor. Monitoring starts 5 seconds after the start of play or special playback mode, this error is detected if the overcurrent port is "L" for 4 seconds. | •Motor NG<br>•Clamper rubbing |
| U0 | FG abnormality error | ①At LD start-up, the rate of rotation calculated from the FG was less than 15 rpm for 5 consecutive seconds from the spindle run command.<br>②At CD start-up, there was less than 1/8th rotation even after 5 seconds had passed since the end of acceleration.<br>③During play search, CD : subcordes are being read/LD : Phillips codes are being read and the spindle is locked, but a state in which the rate of rotation calculated from the FG was less than 15 rpm continued for 5 seconds or more. In the above case, it is judged that an abnormality has occurred in the FG sensor and that accurate rotation rate calculation has become impossible. | •FG sensor abnormality, FG signal not coming to mechanism controller<br>•FG sensor clogged<br>•Rubbing between FG sensor and slit<br>•Turntable dropped<br>•FG slit deposition NG |
| H1 | Partial short error | ①At LD start-up, the speed did not reach 1200 rpm within a certain time (12 seconds) after the spindle run command.<br>②At CD start-up, a certain speed (313 rpm) was not reached within 6 seconds from the end of spindle acceleration. | •Spindle motor NG<br>•Commutator NG<br>•Bearing too tight<br>•Power supply NG |
| H2<br>A0 | Power supply abnormality error | − 5V power supply abnormality detected.<br>The power supply abnormality port is constantly monitored and if its signal stays high for about 1 second consecutively, the power supply is judged to be abnormal. | • − 5V not fed from POWER SUPPLY assy<br>•Parts shorted |
| L ∗ | Loading error | ①When loading operation goes over time (approx. 10 sec.).<br>②When assist at disc sense entry ends and is not tilt neutral.<br>③When assist at set up entry ends and is not tilt neutral. | •Tilt switch 1, 2, 3 abnormal, so tilt/loading state not read in correctly<br>•Tilt/loading mechanism mechanically locked<br>•Drive IC NG<br>•Power supply NG |
| E ∗ | Slider error | During slider movement, a time over-run occurred (track count search 20 seconds, mandatory movement 10 seconds) | •Slider ceased being able to run<br>•The slider mechanism is mechanically locked and can no longer move to its target.<br>•Slider position switch NG<br>•Flexible cable pulled out<br>•Drive IC NG<br>•Power supply abnormal |
| U1 | Miss clamp error | ①During LD setup, after 1/8th rotation, the track count during 1/8 rotation exeeded 511.<br>②During start-up, the focus was lost once and refocusting was attempted, but the focus could not be locked.<br>③Two FG pulses did not come within 800 ms from from the start of LD start-up.<br>④The disc clamp operation did not end within 5 seconds. | •Disc sandwiched<br>•Disc shifted<br>•Spindle motor NG<br>•Disc scratched or dirty defocused during start-up<br>•Two discs loaded<br>•PU actuator NG<br>•Tilt sensor NG<br>•Tilt neutral NG (tilt base NG) |

| Self-diagnostic error code | Contents | Conditions | Probable cause |
|---|---|---|---|
| P ∗ | Spindle error | ①During TOC reading with an LD, the spindle servo was not locked within 60 seconds from the start of the spindle run.<br>②When CAV/CLV determination is not finished within 60 seconds from spindle servo lock.<br>③The codes could not be read for 10 – 15 seconds consecutively for an LD or 7 – 10 seconds for a CD/CDV and the spindle servo was not locked.<br>④The speed exceeded 2100 rpm during LD start up. | P0 :•PH code, SUB-Q code can not be read<br>•VCO, PLL offset out of adjustment<br>•Disc defect<br>P5:•PAL disc, mirror disc, etc. PLAY<br>•No RF<br>P6:•Spindle servo does not lock<br>•Spindle motor NG |
| F ∗ | Focus error | ①"In the "no disc" state, a setup command was received from the mode controller.<br>②When LD is out of focus when slider is moved to starting position during set up. In case of CD/CDV is NG even after three focus tries.<br>③During start-up, the maximum slider servo duty continued for 3 loops or more. | F5 :•CD, LD on top of each other<br>•LD scratched or dirty defocused during slider movement<br>•Disc NG<br>•Slider position switch NG<br>F6 :•Inner edge of disc scratched or dirty<br>•Slider ran into inner edge mechanical stopper |

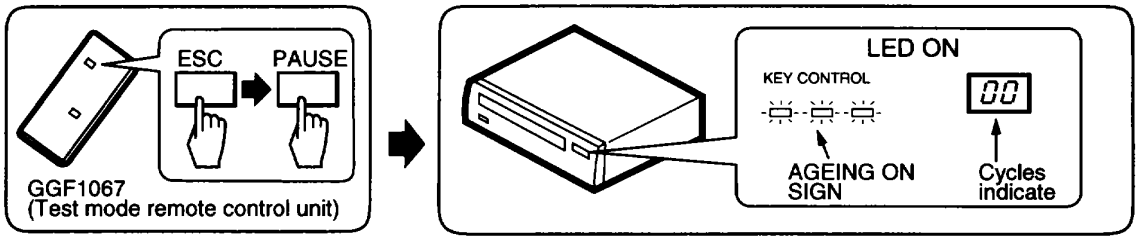
∗ Besides the above errors, there is the "U2" communications error (the mode controller could not communicate normally with the mechanism controller)
∗ The probable cause is a defective mechanism controller, disconnected cable, etc..
Mechanism mode contents (meanig of ∗ for L ∗ etc.)

| | |
|---|---|
| 0 : Play | 5 : Setup (rotation start) |
| 1 : Open | 6 : TOC read |
| 2 : Standby | 7 : Play |
| 3 : Clamp | 8 : Search |
| 4 : Disc sense | F : Recovery mode |

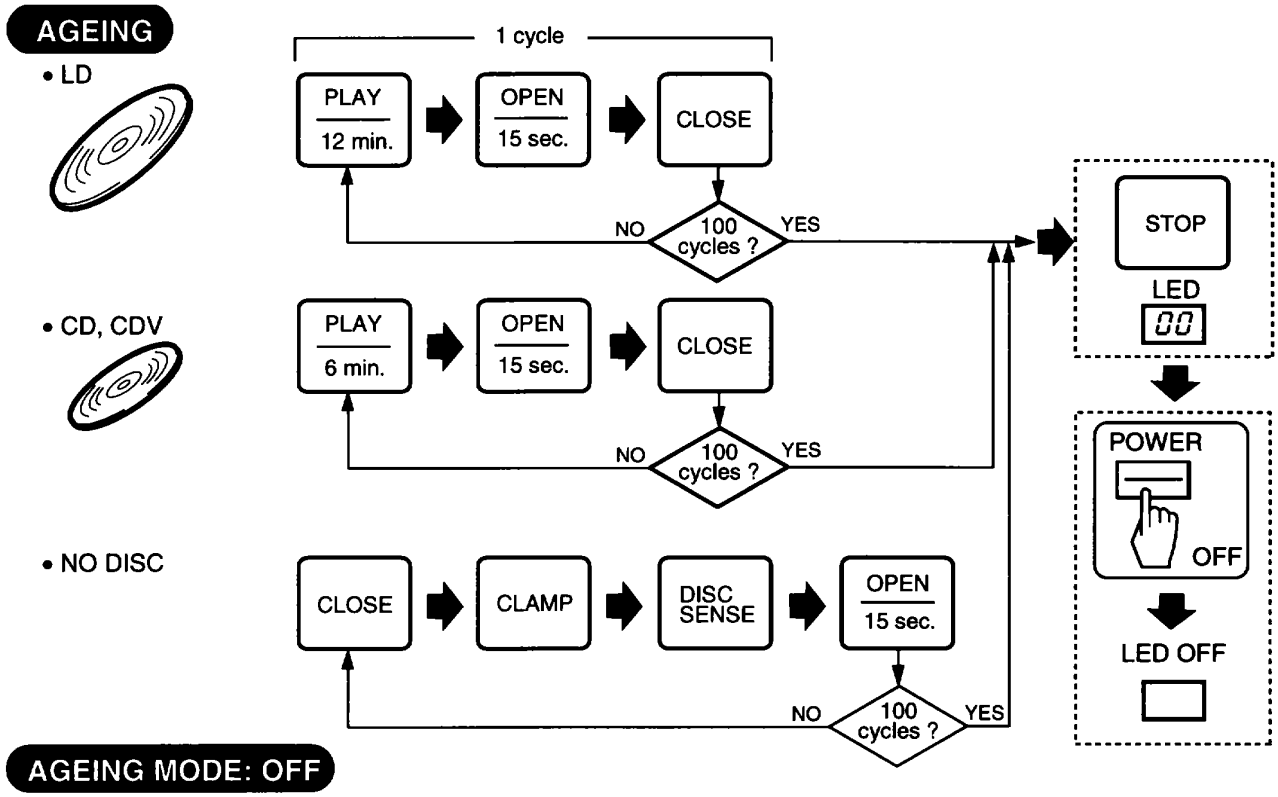
∗ 0 : Normal playing
7 : Moving to play operation

# 7. AGEING MODE (エージングモード)

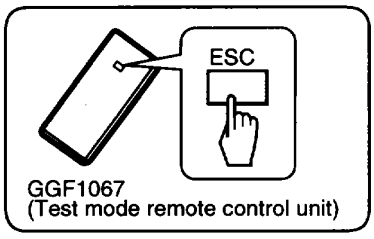
**AGEING MODE: ON** •Note for KARAOKE model : Set the SINGLE PLAY (一曲停止) mode to OFF.



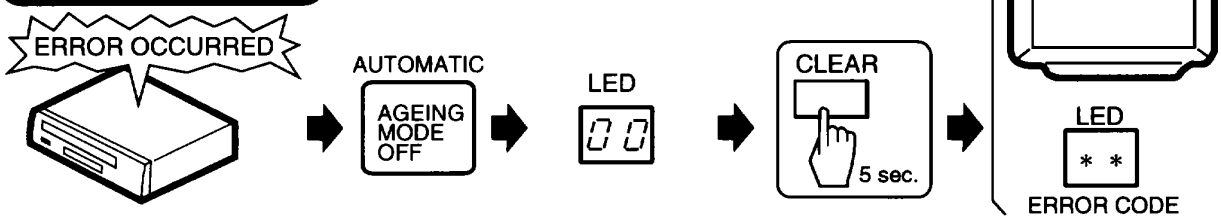

**AGEING**




**AGEING MODE: OFF**



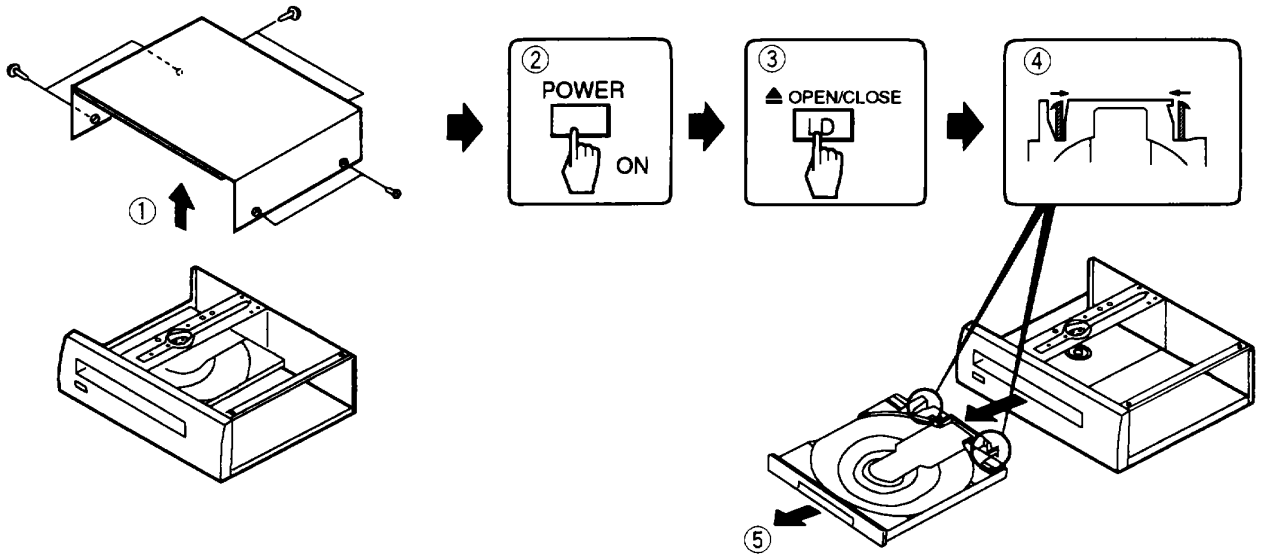

**ERROR OCCURRED** ERROR OCCURED : エラー発生



# 8. DISASSEMBLY/ASSEMBLY (分解/組立の手順)

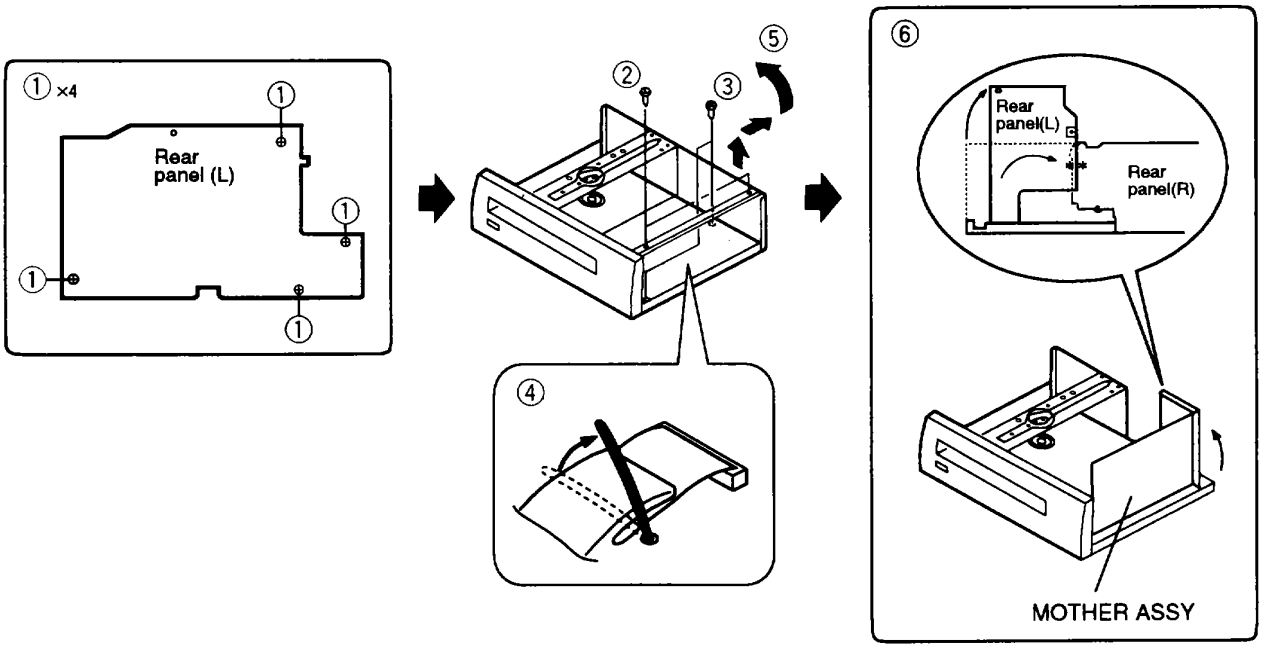
## 8.1 DISC TRAY

- Disassembly : ①→②→③→④→⑤
- Assembly : ⑤→①




## 8.2 MOTHER ASSY

- Disassembly : ①→②→③→④→⑤→⑥
- Assembly : ⑥→⑤→④→③→②→①



# 9. IC INFORMATION

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

## ■PD3339A (MOCB ASSY : IC101)

### · MODE CONTROL IC

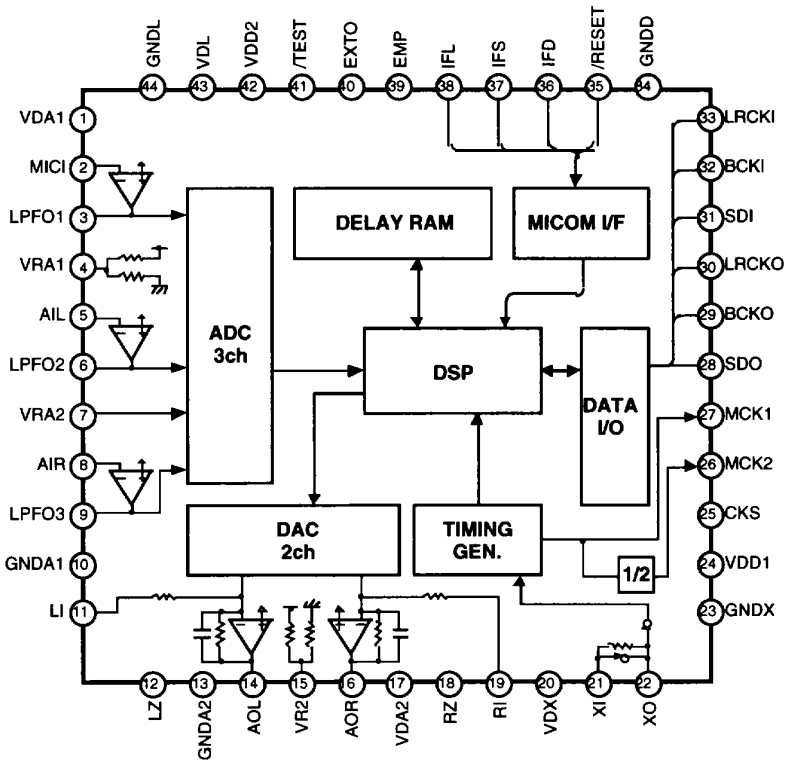
### •Pin Function

| No. | Mark | Pin Name | I/O | Function | No. | Mark | Pin Name | I/O | Function |
|---|---|---|---|---|---|---|---|---|---|
| 1 | P04 | MODE SEL | I | MIC switch input | 41 | P60 | e | O | 7 seg. segment e |
| 2 | P05 | ECHO VOL | I | Echo audio volume input | 42 | P61 | b | O | 7 seg. segment b |
| 3 | P06 | ONTA BAL | I | Guide vocal audio volume input | 43 | P62 | f | O | 7 seg. segment f |
| 4 | P07 | MODE SW | I | Standard/Karaoke/External input switching input | 44 | P63 | a | O | 7 seg. segment a |
| 5 | AVSS | — | I | GND | 45 | P64 | c | O | 7 seg. segment c |
| 6 | TEST | Not used | I | GND | 46 | P65 | g | O | 7 seg. segment g |
| 7 | X2 | Not used | O | NC | 47 | P66 | d | O | 7 seg. segment d |
| 8 | X1 | Not used | I | GND | 48 | P67 | Not used | O | NC |
| 9 | VSS | GND | I | GND | 49 | P70 | Not used | | |
| 10 | OSC1 | — | I | Main system clock oscillation (8MHz) | 50 | P71 | Not used | | |
| 11 | OSC2 | — | O | | 51 | P72 | Not used | | |
| 12 | xRST | XRESET IN | I | CPU reset input (Reset for L) | 52 | P73 | Not used | | |
| 13 | IRQO | SHAKE | I | Mechanism controller serial communication request | 53 | P74 | Not used | | |
| 14 | IRQI | SEL IR | I | Remote control input | 54 | P75 | Not used | | |
| 15 | P12 | Not used | O | NC | 55 | P76 | Not used | | |
| 16 | P13 | POWER | O | Mother board power supply switching output (Power ON for H) | 56 | P77 | Not used | | |
| 17 | P14 | EFLG | I | For error rate measurement | 57 | VCC | — | I | +5V |
| 18 | P15 | FSX | I | For error rate measurement | 58 | P80 | DIGIT1 | O | 7 seg. digit 1 |
| 19 | P16 | Not used | I | GND | 59 | P81 | DIGIT2 | O | 7 seg. digit 2 |
| 20 | P33 | XINT/EXT | O | Internal/External audio selection | 60 | P82 | Not used | O | NC |
| 21 | P32 | I/O CLKI | O | Clock output for I/O expander | 61 | P83 | Not used | | |
| 22 | P31 | I/O DATA | O | Data output for I/O expander | 62 | P84 | Not used | | |
| 23 | P30 | XMIC ON | O | Mic audio input switching output (Output ON for L) | 63 | P85 | Not used | | |
| 24 | P47 | Not used | O | NC | 64 | P86 | WSIDE SEL | I | Single side/Double sided model switch port (L : Sigle side model) |
| 25 | P46 | DOG FOOD | O | Pulse output for Watchdog | 65 | P87 | Not used | O | NC |
| 26 | P45 | Not used | O | NC | 66 | P90 | Not used | O | |
| 27 | P44 | Not used | O | | 67 | SCKI | S-LOCK | I/O | Serial communication clock (Mech. controller, OSD and DSP) |
| 28 | P43 | Not used | O | | 68 | SII | S-MTOF | I | Serial communication data input (Mech. controller) |
| 29 | P42 | Not used | O | | 69 | SOI | S-FTOM | O | Serial communication data output (Mech. controller, OSD and DSP) |
| 30 | P41 | Not used | O | | 70 | P94 | XRESET OUT | O | Mother board reset output (Reset for L) |
| 31 | P40 | Not used | O | | 71 | P95 | XOSDCS | O | CS output of OSD IC |
| 32 | P50 | Not used | O | | 72 | P96 | XDSPCS | O | CS output of DISP IC |
| 33 | P51 | Not used | O | | 73 | P97 | Not used | O | NC |
| 34 | P52 | LED (♭) | O | Key control flat LED (Lights for H) | 74 | PAO | Not used | | |
| 35 | P53 | LED (NTL) | O | Key control natural LED (Lights for H) | 75 | PAI | Not used | | |
| 36 | P54 | LED (#) | O | Key control sharp LED (Lights for H) | 76 | AVCC | — | I | +5V |
| 37 | P55 | LED (PLAY) | O | PLAY LED (Lights for H) | 77 | ANO | KIN0 | I | adc input : A/D key input 0 (0 to 5V) |
| 38 | P56 | LED (PAUSE) | O | PAUSE LED (Lights for H) | 78 | ANI | KIN1 | I | adc input : A/D key input 1 (0 to 5V) |
| 39 | P57 | Not used | O | NC | 79 | PO2 | KIN2 | I | adc input : A/D key input 2 (0 to 5V) |
| 40 | P17 | Not used | I | NC | 80 | PO3 | MODEL SEL | I | adc input : Model switch port |

## ■TC9409AF-001 (MOTHER ASSY : IC300)

### · DIGITAL AUDIO SIGNAL PROCESSOR

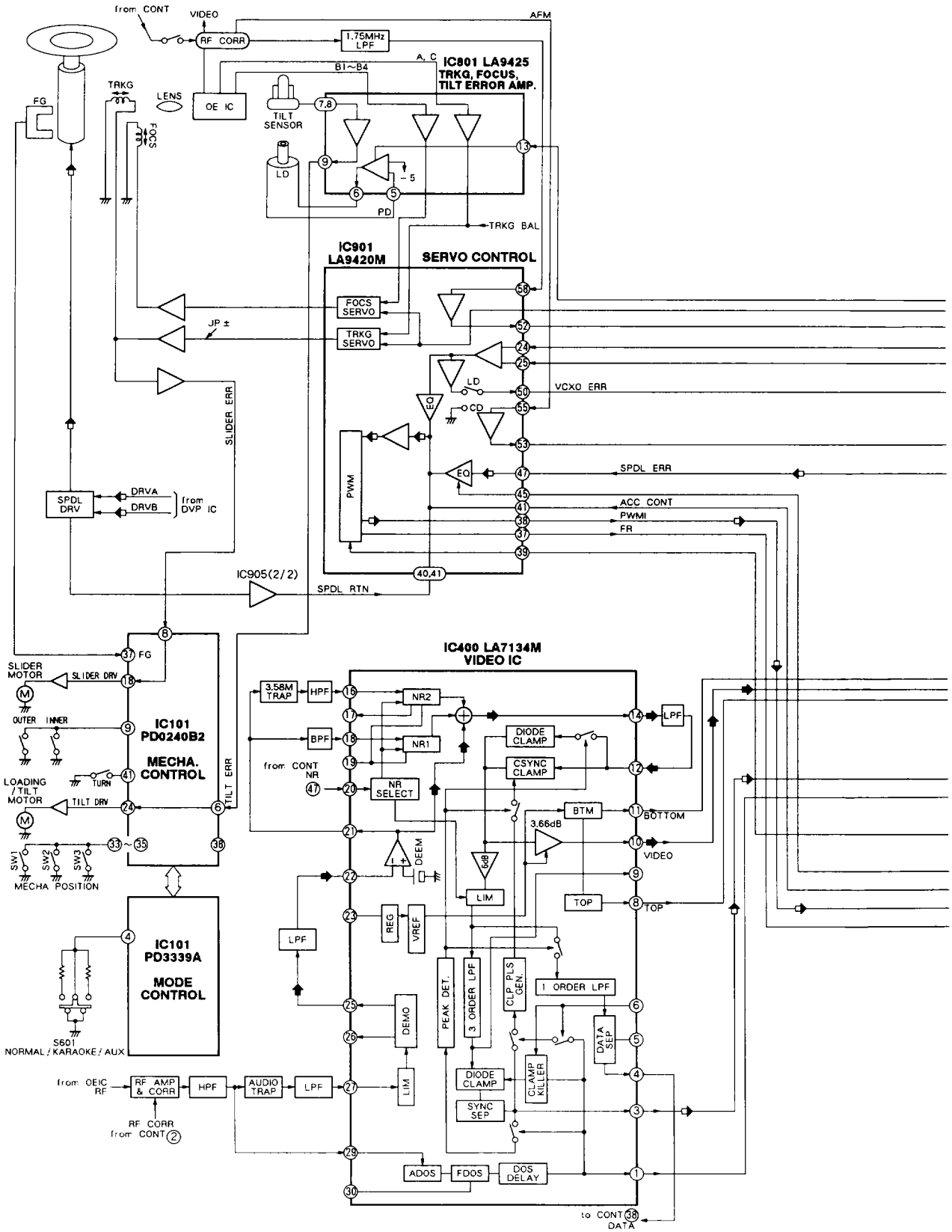
### •Block Diagram

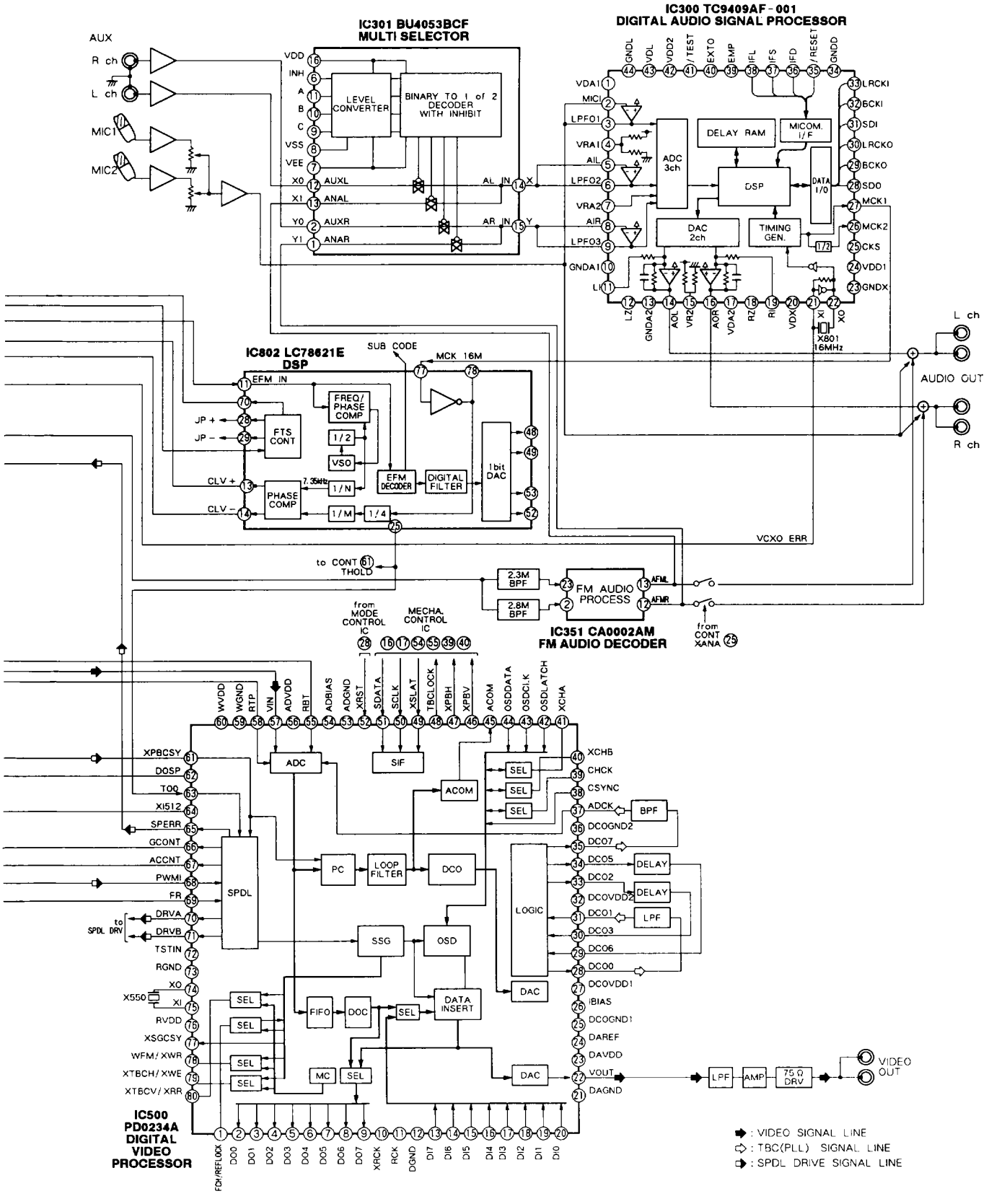



### •Pin Function

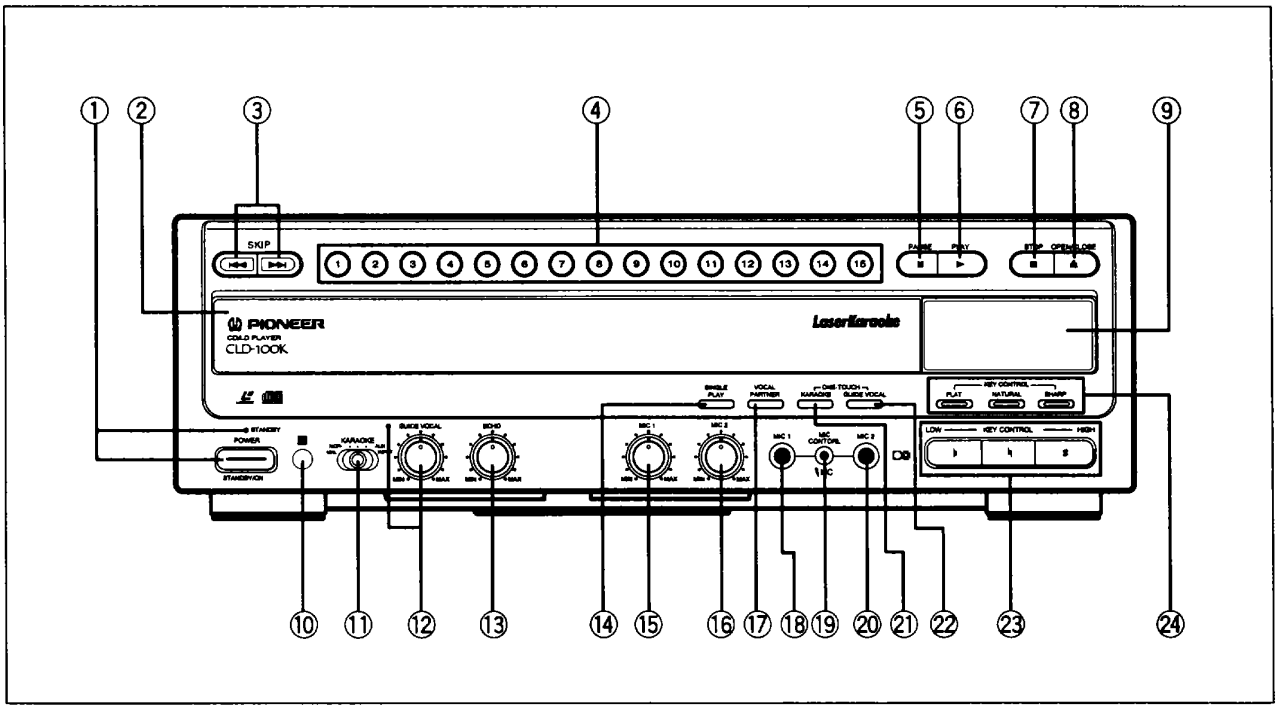
| No. | Pin Name | I/O | Function | No. | Pin Name | I/O | Function |
|---|---|---|---|---|---|---|---|
| 1 | VDA1 | — | ADC power supply | 23 | GNDX | — | Ground for oscillation section |
| 2 | MICI | I(A) | LPF input for MIC input | 24 | VDD1 | — | Digital power supply |
| 3 | LPFO1 | O(A) | LPF output for MIC input | 25 | CKS | I | Master clock selection (H : 256/384fs, L : 512/768fs) |
| 4 | VRA1 | — | ADC reference voltage | 26 | MCK2 | O | Oscillation clock output for frequency divided by 2 |
| 5 | AIL | I(A) | LPF input for L ch line input | 27 | MCK1 | O | Oscillation clock output |
| 6 | LPFO2 | O(A) | LPF output for L ch line input | 28 | SDO | O | Digital audio data output |
| 7 | VRA2 | — | Reference power supply for ADC | 29 | BCKO | O | Bit clock output |
| 8 | AIR | I(A) | LPF input for R ch line input | 30 | LRCKO | O | Channel clock output |
| 9 | LPFO3 | O(A) | LPF output for R ch line input | 31 | SDI | I | Digital audio data input |
| 10 | GNDA1 | — | ADC ground | 32 | BCKI | I | Bit clock input |
| 11 | LI | I | L ch analog adder input | 33 | LRCKI | I | Channel clock input |
| 12 | LZ | O | L ch digital input zero detection | 34 | GNDD | — | Digital ground |
| 13 | GNDA2 | — | DAC ground | 35 | /RESET | I(UP) | Reset (Reset for L) |
| 14 | AOL | O(A) | L ch DAC output | 36 | IFD | I | Microcomputer I/F data input |
| 15 | VR2 | — | DAC reference voltage | 37 | IFS | I | Microcomputer I/F data shift clock input |
| 16 | AOR | O(A) | R ch DAC output | 38 | IFL | I | Microcomputer I/F latch pulse input |
| 17 | VDA2 | — | DAC power supply | 39 | EMP | I | Deemphasis setting (Deemphasis ON for H) |
| 18 | RZ | O | R ch digital input zero detection | 40 | EXTO | O | Expansion output |
| 19 | RI | I | R ch analog adder input | 41 | /TEST | I(UP) | Test mode setting (Normally, fixed for H) |
| 20 | VDX | — | Power supply for oscillation section | 42 | VDD2 | — | Digital power supply |
| 21 | XI | I | Connect a oscillator | 43 | VDL | — | Digital power supply for DRAM |
| 22 | XO | O | (any of 256, 384, 512 or 768fs) | 44 | GNDL | — | Digital ground for DRAM |

# 10. BLOCK DIAGRAM




IC301 BU4053BCF
MULTI SELECTOR
IC300 TC9409AF-001
DIGITAL AUDIO SIGNAL PROCESSOR
AUX
R ch
L ch
MIC1
MIC2
LEVEL CONVERTER
BINARY TO 1 of 2 DECODER WITH INHIBIT
ADC 3ch
DAC 2ch
DSP
DELAY RAM
MICOM I/F
DATA I/O
TIMING GEN.
IC802 LC78621E
DSP
SUB CODE
MCK 16M
EFM IN
FREQ/ PHASE COMP
FTS CONT
PHASE COMP
EFM DECODER
DIGITAL FILTER
1bit DAC
VCXO ERR
X801 16MHz
AUDIO OUT
L ch
R ch
to CONT THOLD
2.3M BPF
2.8M BPF
FM AUDIO PROCESS
IC351 CA0002AM
FM AUDIO DECODER
from MODE CONTROL IC
MECHA. CONTROL IC
from CONT XANA
ADC
SIF
ACOM
SEL
BPF
DELAY
LPF
PC
LOOP FILTER
DCO
SPDL
LOGIC
SSG
OSD
DAC
FIFO
DOC
DATA INSERT
MC
AMP
75Ω DRV
VIDEO OUT
IC500
PD0234A
DIGITAL
VIDEO
PROCESSOR
: VIDEO SIGNAL LINE
: TBC(PLL) SIGNAL LINE
: SPDL DRIVE SIGNAL LINE

# 11. PANEL FACILITIES




① **POWER STANDBY/ON switch and STANDBY indicator**
Press to turn the power on and off.
② **CD/LD Disc table**
③ **SKIP buttons**
④ **Direct music search buttons**
⑤ **PAUSE (II) button**
⑥ **PLAY (►) button**
⑦ **STOP (■) button**
⑧ **OPEN/CLOSE (▲) button**
⑨ **Display window**
⑩ **Remote sensor**
⑪ **NORMAL/KARAOKE/AUX INPUT selector**
⑫ **GUIDE VOCAL level control/indicator**
⑬ **ECHO level control**
⑭ **SINGLE PLAY button/indicator**
⑮ **MIC 1 level control**
⑯ **MIC 2 level control**
⑰ **VOCAL PARTNER button/indicator**
⑱ **MIC 1 jack**
⑲ **MIC CONTROL jack**
⑳ **MIC 2 jack**
㉑ **ONE-TOUCH KARAOKE button/indicator**
㉒ **ONE-TOUCH GUIDE VOCAL button/indicator**
㉓ **KEY CONTROL buttons**
㉔ **KEY CONTROL indicator**

# 12. SPECIFICATIONS

**General**

System ..... LaserVision Disc system and Compact Disc digital audio system
Laser ..... Semiconductor laser wavelength 780 nm
Power requirements ..... AC 110 - 240 V, 50/60 Hz
Power consumption ..... 31 W
Weight ..... 5.9 kg
Dimensions ..... 420 (W) x 390 (D) x 132 (H) mm
Operating temperature ..... +5 °C ~ +35 °C
Operating humidity ..... 5 % ~ 85 %
(There should be no condensation of moisture.)

**Video characteristics (two pairs)**

Format ..... NTSC specifications
Video output
Level ..... 1 Vp-p nominal, sync. negative, terminated
Impedance ..... 75 Ω unbalanced
Jack ..... RCA jack

**Audio characteristics (two pairs)**

Output level
During analog audio output ..... 200 mVrms (1 kHz, 40 %)
During digital audio output ..... 200 mVrms (1 kHz, -20 dB)
Jacks ..... Both RCA jacks
Number of channels ..... 2 (Stereo)

**Other terminals**

Control input/output ..... Both miniature jacks
AUX ..... RCA jacks

**Accessories**

Remote control unit ..... 1
Size "AA" (IEC R6P) dry cell batteries ..... 2
Video cord ..... 1
Audio cord ..... 1
Power cord ..... 1
Operating instructions ..... 1
Warranty card ..... 1

***NOTE:***

*The specifications and design of this product are subject to change without notice, due to improvement.*